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SUMMER DIARRHEAS IN CHILDREN

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The mortality from the diarrheal diseases or so-called "summer complaint" has always been cause for a great deal of concern. Due to improved feeding methods, better living conditions, closer supervision of milk supply, etc., there has been a remarkable reduction in this death rate in recent years. Still, this group of conditions ranks among the foremost factors in infant mortality. They are essentially hot weather diseases—only occasionally are cases seen during the cool months of the year. And these usually complicate infections elsewhere in the body—sinusitis, mastoiditis, etc. Practically all the severe cases occur during the first two years of life. They are much more common among the poor in the overcrowded sections of the cities and in the rural districts. Artificial feeding during the first year or dietary indiscretions during the second year constitute the greatest etiological factors—other than summer heat.

In this paper an attempt is made to review some of the most important points in the handling of these cases without being too scientific. It represents what the writer believes to be a common sense and practical classification and treatment.

The diarrheal diseases have not, in the past, been satisfactorily and uniformly classified. Hardly any two authorities have coincided. Possibly the most logical classification is that of Porter and Carter. They divide them into:

1. Mechanical diarrheas.
2. Proteolytic diarrheas.
3. Fermentative diarrheas.
4. Infectious diarrheas.

The first two classes will be passed over as they belong more properly with the general subject of infant feeding. Most all of our summer cases can be classified as either fermentative or infectious diarrheas.

Before beginning any form of treatment, one should determine, if possible, which type of diarrhea is present. The main points of differentiation are:

1. Fermentative diarrhea is simply a fermentation of the intestinal contents without any attack upon the intestinal mucosa or other body tissues by the causative organisms. Infectious diarrhea is a definite bacterial invasion of the intestinal walls and other body tissues—usually by some strain of the bacillus dysenteriae.

2. In fermentative diarrhea the temperature is apt to be higher with a decline at the end of four or five days. In the infectious type the temperature is not often high, except in the very beginning, but runs a prolonged course over a period of several days or weeks. Some of the mild cases have practically no fever.

3. In the fermentative type the abdomen is commonly distended, but there is little pain or tenesmus present. The infectious type presents a flat or sunken abdomen and usually pain with tenderness—especially over the colon.

4. The character of the stools is different. The fermentative type usually produces a green, watery, irritating stool, acid to litmus and showing fermentation. The infectious type of stool is characterized by the presence of pus and blood, very little odor and usually an alkaline reaction.

Two points here should be emphasized: the presence of blood and the alkaline reaction. These are generally quite sufficient to establish the diagnosis of infectious diarrhea.

Now it may not be possible to properly classify every case. For instance, the real severe cases of fermentative diarrhea due to the intense irritation of the intestinal mucosa, may show some blood in the stools. And at times the infectious type will show some fermentation. It is possible for both types to be present at the same time. The character and reaction of the stools also depends some upon the kind of food ingested. But generally speaking,

the classification given above will be found practical.

Before taking up the treatment proper, one should at least mention prophylaxis. Naming the predominating etiological factors should at once suggest the most important measures of control: Encouraging breast feeding, properly supervising artificial feeding, advocating the boiling of all milk given during the first two years of life and educating against gross dietary indiscretions. The present wide use of lactic acid milk as an infant food in some sections doubtless is very instrumental in lessening the frequency of these disturbances.

The active treatment can be discussed under the following headings:

1. Initial purgation.
2. Period of starvation.
3. Proper diet.
4. Measures for controlling toxemis, temperature, dehydration and acidosis.
5. Drugs.

The two conditions can be discussed together under each of these headings except the one dealing with diet. This will be taken up in some detail.

Initial Purgation. It is usually advisable to begin with a forcible evacuation of the intestinal contents. Castor oil in doses ranging from two drams to one ounce is the most effective agent. It will sometimes be retained even when the child is nauseated and vomiting. Where it is persistently vomited calomel may be used in doses of 1-10 gr. to 1-5 gr. every half hour for ten doses. This should be followed in about three hours by two or three teaspoonsful of milk of magnesia.

Period of Starvation. It is usually better, especially in the severe cases, to withhold all food for from 12 to 24 hours. During this time it is very essential that the child receive a sufficient amount of fluids—two or three ounces for each pound of body weight in the 24 hours. This may be given in the form of plain boiled water, barley water or weak tea. The barley water or tea can be sweetened with saccharin.

Food. It is a mistake to starve these patients too long. 24 hours should be the limit. The nature of the food depends on the type of diarrhea.

In the fermentative type, with the greenish watery, acid, fermenting stool there is a distinct indication for a particular kind of food. The disturbing organisms here thrive on a carbohydrate medium. With the excessive fermentation there is also an interference with the digestion of fats. So the proper food must be high in proteins with a minimum of fats and carbohydrates. These requirements are well met by protein milk. This is readily prepared from the powdered form put out by several different manufacturers. Some children take it better if sweetened with saccharin—using one grain to each quart. In the very toxic cases it is better to begin with small amounts, say half an ounce for each pound of body weight every 24 hours. This can be gradually increased until the child receives an amount equivalent to what it is accustomed to take of the ordinary milk feedings. In two or three days sugar in some form should be gradually added—the rapidity of its increase depending on the child's condition. This may be in the form of the maltose dextrin mixtures, Karo corn syrup or milk sugar. After the sugar is added the child can be kept on the mixture for some time. When the number and character of the bowel movements approach the normal, the protein milk can be gradually replaced by boiled skimmed milk. The fats are poorly tolerated and should be withheld for several days or weeks afterwards. Another useful food in this type of cases is lactic acid milk. The lactic acid seems to inhibit the growth of the harmful bacteria in the alimentary tract. As a matter of fact, the author has recently made use of skimmed lactic acid milk more often than of protein milk. In the severe cases it is usually diluted with an equal amount of water in the beginning. Some form of sugar is later added, just as is done with protein milk. When used without the sugar it can be sweetened with saccharin. Probably the most desirable of all the foods used is a protein milk containing lactic acid—similar to the preparation originally put out by Finkelstein. Such products are put out by manufacturing houses in powdered form.

In the infectious type, showing blood in the stools, we are usually dealing with some strain of the dysentery bacillus. These organisms grow readily on carbohydrate or protein media. Growing on protein media they produce toxic substances; on carbohydrates their products are harmless. Moreover, a certain amount of carbohydrate tends to inhibit their growth and development. So the indica-

tion is for a food high in carbohydrates with a minimum of fats and proteins (the fats are always badly borne). Lactose is the carbohydrate of choice as it is more slowly broken down and is more apt to reach the lower intestinal tract. However, dextri-maltose or Karo corn syrup can be used. They should be given in a 7 to 10 per cent solution. In a few days, depending on the amount of improvement, boiled skimmed lactic acid milk can be gradually added. This is finally allowed to replace the sugar solution. Cream of wheat can be added early. Also toast and crackers. Even pure sugar candy can be given in case the other carbohydrates are poorly taken.

The Toxemia, Temperature, Dehydration and Acidosis are all combated by the same therapeutic measures. Most of the severe symptoms are due, directly or indirectly to dehydration of the blood and tissues. This brings about aligurea and anurea with increased retention of nitrogenous wastes and acidosis.

Obviously, the indication is to restore the fluid balance. In mild cases where there is no vomiting sufficient fluids may be given by mouth. In the more severe cases it is often necessary to inject normal saline into the peritoneal cavity. Amounts ranging from 150 to 500 c.c. can be easily administered this way and repeated once or twice daily as long as necessary. The effects are sometimes nothing short of marvelous. The kidney soon begins to function, the toxemia is reduced, the acidosis is overcome and the tissues resume a more normal consistency. Colonic irrigations twice daily do good in most cases. The author employs a one per cent solution of boracic acid in the infectious type and a five per cent solution of bicarbonate of soda in the fermentative type. The irrigation is done through a soft rubber catheter (25 French) passed high into the colon.

Drugs play a small role in the treatment. It is impossible to give medicine strong enough to materially affect the microorganisms of the alimentary tract without injury to the patient. Bismuth in doses of five to ten grains every three hours possibly does no harm and may be slightly beneficial. The coal tar products should not be used for high temperature. This is better controlled by colonic irrigations and sponging. Hot stupes to the abdomen may help control the pain and tenesmus. Two to five grains of sodium bromide every three or four hours may be given for nervousness and restlessness. When there is a great deal of pain and tenesmus, much straining with the passage of only small amounts of bloody mucus, or a tendency to prolapse of the rectum, opiates are usually necessary. Paregoric is the safest to use. It should be used in amounts just sufficient to relieve the discomfort. If carried farther than this it inhibits peristalsis, brings about retention of toxic substances in the alimentary tract with resulting systemic absorption. This, of course, increases the toxic symptoms. When sufficient fluids are given very little medicine is necessary. When stimulants are needed, caffeine, camphor, and adrenalin may be used hypodermically or intramuscularly.

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FEEDING OF OLDER INFANTS*

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It has been our observation in the Neathery Clinic of Sherman, Texas, that infants referred to us through the courtesy of the profession in Southeastern Oklahoma are exceptionally well nourished during the first nine months of life. This fact we attribute to the judicious use of breast milk when possible and, in its absence, to the use of lactic acid milk and Karo syrup after the plan of Marriott, as advocated by the extension Department of the University of Oklahoma. The object of this paper will be to begin where the period of usefulness of breast and lactic acid milk ends and to offer a few suggestions with regard to the feeding of older infants.

Infancy, according to Griffith, begins at birth and lasts until the temporary teeth have erupted or, in other words, until between the second and third years. There is no period of life when the nutrition of an individual is in such jeopardy. The physician who has watched the child's weight and development throughout the first nine months begins to relax his vigilance and the parents feel that their battle has been won. The mother permits the baby to dictate what food he will eat and when, while the father buys his smile and affection with candy, ice cream, raw fruits and nuts.

*Read before Southern Medical Association, December, 1927.

The most frequent errors of feeding older infants are as follows:

1. Irregularity.
2. Procrastination.
3. Radicalism.
4. Irresponsibility.
5. Unsuitable food.

The most frequently violated of these is irregularity. If the average parent ate and slept at the times and in the manner they permit their children to, they would have severe digestive disturbances. An infant should receive all the nourishing, plain food he can eat at four hour intervals during the day and for the first year a bottle at ten o'clock at night. Two-thirds of the gastro-intestinal difficulties could be eliminated with this simple procedure, and parents should have it impressed upon them by their family physician that a baby should be given nothing between meals but water. Regularity of rest and sleep, as I will show you in a few minutes, are as important as food. It should also be mentioned here that a regular hour for going to stool will assist in eliminating the problem of constipation.

Procrastination is not only the thief of time but it has cost the health of many children. A mother is told to wean the baby at nine months. She puts it off. The baby fails to gain. She gets worried and refuses to wean the baby because it is not doing well. She is afraid to consult her physician for she knows what he will say. The result is an undernourished child.

The breast milk does not contain adequate nourishment or mineral salts, especially iron, after about six months. Substitute feedings of a suitable formula should always be begun by six months with the addition of cereal and toast. This should be gradually increased, one bottle a month, until the baby is automatically weaned at about nine or ten months. The sugar and lactic acid are decreased week by week until the baby is getting plain boiled cow's milk at ten months. Cooked cereal at six months; vegetable water and Zwiebach at seven months; stewed fruit, vegetables passed through a seive, egg yolk at eight months; and calf's liver at nine or ten months should be begun. In this way the problem of radicalism is overcome. Only in exceptional cases should sudden dietary changes in infancy be made.

Irresponsibility or, better, a failure to understand the importance of proper feeding on the part of the parents is, of course, a great obstacle. This can be overcome only by propaganda and education extended principally through the profession. Young mothers have infinite faith in their physician and will frequently heed his advice when they will listen to no other.

With regard to the type of food, only the plainest and simplest of foods should be allowed any child until they are three years of age. A very well educated and refined mother brought her two-year-old boy into my office with a complaint of constant pain in the abdomen. In eliciting the history I found that the baby refused breakfast, had a piece of toast at 9:00 A. M., a raw apple and a nickel's worth of candy at 10:00, a banana at 11:30, refused lunch, and was given a hamburger on the way to my office because he cried for one. A similar history may be obtained from many of your own patients if you will take the trouble to inquire.

The results of poor feeding in later infancy are as follows:

I. Malnutrition.
II. Lowered resistance predisposing to:
  (a) Acute respiratory infections.
  (b) Infectious diseases.
  (c) Gastro-enteritis.
  (d) Diarrheas.
    1. Parenteral.
      (a) Naso-pharyngitis.
      (b) Otitis.
      (c) Pyelitis, etc.
    2. Fermentative.
    3. Infectious.
III. Secondary anaemia.
IV. Rickets.
V. Scurvy.
VI. Xerophthalmia, osteomalacia, etc.

Contributing causes of malnutrition with regard to importance:

Most of the above requires very little explanation. I wish to call especial attention to the diagram which was taken from a lecture by Fritz B. Talbot of Boston, to

the Post-graduate pediatric section of Harvard University. From it will be observed that food itself plays only a comparatively minor role in comparison to the routine of the child's life. As I have mentioned before, irregularity and fatigue are the outstanding factors. Too many mothers expect a two-year old child to attend all the picture shows, parties, automobile rides, and to entertain Daddy until 10:00 or 11:00 o'clock at night. Poor posture predisposes to malnutrition principally in older children and is usually the result of a pot-belly and softened bones of an early rickets. The results of a lowered resistance from malnutrition as above outlined are familiar to you in your daily practice. Remember, that a child with poor nutritional foundation is forever an easy victim for all infections.

Diet correction lies principally in the instigation of regular hours and habits. If the infant from nine months to three years is given one quart of milk and one green, cooked vegetable daily, an egg at least every other day, and the remainder of his diet consisting of cereals, cooked fruits, a small amount of properly prepared meat and liver, and a simple dessert, you will find he will not suffer from malnutrition provided he is supplied with all the vitamines. Vitamine "C" and "D", or in other words, orange juice and cod liver oil, must be added the remainder being contained in the above diet.

It is my custom to supply each mother with a special diet sheet. These are prepared separately for each of the age groups: the first from nine months to two years, the second from two to five years, the third for the school child. On the front of these are the foods suitable and I fill in the amounts not to be exceeded, together with the caloric value of each. On the reverse side of each sheet are the directions in detail for preparing each article of food. The mother is made to feel that each diet sheet is for her individual child by my filling in the quantities of each food and its caloric value in her presence.

Unless direct sunbaths are practical and available, each child is given cod liver oil in suitable doses from nine to eighteen months.

SUMMARY

1. Danger period of infant feeding from nine months to three years.
2. Errors of feeding at this age due to:
   (a) Irregularity.
   (b) Procrastination.
   (c) Radicalism.
   (d) Irresponsibility.
   (e) Unsuitable food.
3. Malnutrition in physically normal children, due principally to irregularity, fatigue, poor posture, and lack of vitamines.
4. Diet correction and explanation are essential. Vitamines must be supplied.

FOREIGN BODIES IN AIR PASSAGES

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In discussing peroral endoscopy one is forcibly impressed with the rapid progress in the diagnosis and treatment of pulmonary diseases. A recent review of the subject by Soulas clearly reveals the remarkable developments that justify its use by the practitioner.

Foreign bodies in the food and air passages are common misfortunes usually resulting from accidental aspiration or swallowing. The foreign bodies are now found where formerly none had been observed. In a large series of cases reported and reviewed by Jackson foreign bodies in the air and food passages had been overlooked for a period from one month to thirty-six years.

The value of a good history in this type of work cannot be overlooked as the symptoms of gagging and choking frequently prove to be the essential factors in a very complicated case whose present complaint refers to some distant region. Patients who give a history of choking and gagging should be considered as foreign body subjects until proved to the contrary.

The symptoms of foreign bodies in the air passages are very elusive and vague in some cases and this no doubt accounts for the fact that foreign bodies are frequently overlooked and not found until some grave complication has developed. Unfortunately, there is often a period between the time of accident and the occurance of symptoms that prove to be detrimental to the patient. During this period of time weeks or months may elapse and the original accident be forgotten until the discovery of the foreign body in searching for the cause of the complication.

The customary symptoms of foreign bodies in the air passages are those of obstructed breathing or irritation and in-

flammation. There is usually a history of choking and coughing, however, this is not obligatory. The physical signs are those following obstruction and must be very carefully studied. In certain cases there is no obstruction, such as a common pin in the bronchus. Foreign bodies of vegetal origin in children often produce systemic reactions simulating pneumonia and bronchitis.

In the diagnosis of foreign bodies the history, physical findings and roentgen-ray studies should be thoroughly studied. All subjects with obscure chest signs should receive the benefit of a roentgen ray study as innumerable foreign bodies have been discovered in this manner.

Due to the fact that signs and symptoms of foreign bodies often simulate those of common diseases such as pneumonia, bronchitis, empyema, abscess, bronchiectasis, asthma and tuberculosis, the practitioner is prone to jump at the outstanding symptom as well as the most conspicuous physical findings. Unless the possibility of a foreign body is considered in every case of pulmonary disease many foreign bodies will be overlooked.

The diagnosis of nonopaque foreign bodies in the air passage is frequently complicated and difficult. The excellent work of Manges shows that the outstanding changes are obstructive emphysema of both lungs with depression of both sides of the diaphragm and rotation of the heart with diminution of its transverse diameter at expiration. This diminished diameter can be definitely ascertained by actual measurements of the heart shadow on films exposed at the end of inspiration and expiration.

Foreign bodies in the air passages should be removed as soon as possible as they may become dislodged and migrate to more dangerous locations. The possibility of irritation by the foreign body causing edema, pneumonia and other lesions, should warrant the early removal of the offending member. Because one foreign body remained in the bronchus for years without causing any symptoms does not mean that all subsequent cases will terminate so favorably.

The common custom of beating the patient on the back, coughing and holding the head downward cannot be commended as many foreign bodies are dislodged by such methods and immediately land in other locations less favorable to their easy and rapid removal. Many foreign bodies in the air passages have been dislocated by unnecessary movement of the patient and the resulting complications such as complete obstruction call for radical interference such as emergency tracheotomy.

Removal of foreign bodies from the trachea and upper air passages is relatively simple provided one has the necessary armamentarium. The removal of foreign bodies from the bronchi is more complicated and requires more effort on the part of the operator.

The technic of removal is that with which the operator is more familiar. In the hands of some the Killian method is preferable whereas others prefer the technic of Jackson, and others prefer the suspension method of Lynch.

In the opinion of the writer foreign bodies in the air passages require detailed study comprising a good history, complete physical examination. thorough roentgen ray study and removal at the earliest moment by the technic best suited to the individual case.

SEASONAL HAY-FEVER

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A Study of Three Hundred Consecutive Cases

In the state of Oklahoma there are at least thirty thousand seasonal hay-fever sufferers, the cause of whose trouble in nearly all cases is pollen from the wind-borne pollinated plants. Practically every physician will have a number of these cases come to him each summer asking for relief from this distressing syndrome. Especially is this true of the man who deals with the nose and throat as a specialty.

Until relatively recent times, hay-fever was placed by the medical profession in the category of minor human ailments, and there were reasons for this attitude. In the first place, hay-fever never caused death; and in the second place, the physician could do little or nothing to relieve it. However, it is gratifying to know that this hopeless situation has been changed by the careful use of pollen therapy. At the present time, we have definite means of determining the cause of seasonal hay-fever. More attention to this disease is now demanded by those who suffer from

it. On account of the treatment being somewhat complicated, it is being largely investigated by men who are devoting their entire time to the work. Hay-fever today must be considered a controllable disease, and its tortured victims need no longer be neglected.

This paper is based on the study of three hundred consecutive cases of seasonal hay-fever. They are all private, ranging in age from six months to eighty-six years, and have been observed over a period of eight months to five years. This experience has given me a fair opportunity to study the hay-fever problem in this state. I will take up many phases of this disease, and will mention especially in detail the method of determining the cause and the use of pollen therapy in treatment.

ACQUISITION OF POLLEN HYPERSENSITIVENESS

The influence of heredity on the acquiring of pollen hypersensitiveness is admitted by all men working in the field of allergy. It has been carefully studied by Cooke and Vander Veer[1], who have proved that it is transmitted according to the Mendelian law as a dominant characteristic. It has also been shown that bilateral inheritenance will cause symptoms to appear at an earlier age in the offspring, than in the case of the unilateral. Pollen hypersensitiveness is a peculiar sensitiveness of the ophthamic and nasal mucous membranes of the patient to an ordinarily innocuous substance. These patients also have an associted hypersensitiveness of the skin to the same pollen. Advantage is taken of this fact by the physician in determining the pollen or pollens causing the patient's symptoms. It is difficult to understand why one patient should develop a sensitivity to a pollen at six months of age while another will go through life and not develop a sensitivity until in the seventh or eighth decade. In an unpublished paper[2] I reported cases whose hay-fever symptoms began at the ages mentioned, and I assume that the sensitivity developed just prior to the onset of symptoms.

It is generally believed by men working in the field of allergy that patients inherit a blood stream that has the ability to become sensitive but that they do not inherit a sensitivity to any specific protein. Personally, I believe that unless a person is born with a blood stream that has the ability to become sensitive, that it is almost impossible for that individual to become sensitive to any pollen protein; that the ability to become sensitive is handed down through the generations just like red hair or a Roman nose, although it may jump a generation, as will any other inherited tendency. Of the cases recently studied, 176 or 58.6 per cent had relatives of the first degree (father, mother, sister or brother) who suffered from hay-fever or asthma. One of my patients developed her symptoms at seventy-one years of age. However, out of the series studied, 124 or 43.3 per cent developed their hay-fever symptoms between the ages of fifteen and twenty-five.

It is impossible to say just why one patient will develop a sensitivity so early in life, and another one so late in life, and why such a large per cent will develop their symptoms between the ages mentioned. It is reasonable to believe, however, that it is due to the fact that at this age they come in contact with tremendous doses of pollen, so that massive contact with the pollen protein plays a part in causing the blood streams to develop this peculiar sensitiveity. It is at this age (from 15 to 25) that men and women go out into the activities of life, which brings them in contact, from their traveling, with massive doses of pollen.

HISTORY

In the beginning the investigation of a hay-fever patient a detailed history is first in order. One should first take up the question of inheritance. The age of onset and close questioning concerning the early symptoms should be elicited inasmuch as hay-fever in infancy differs, to some extent, to patients in the adolescent period and in adult life. Careful questioning as to the sections of the state or United States in which the patient has lived should be asked, the exact date of onset of symptoms should be determined as carefully as possible, and one should always inquire as to whether symptoms entirely disapper at frost, inasmuch as a typical hay-fever case which is not complicated with other proteins, will disappear immediately with frost.

PHYSICAL EXAMINATION

The vast majority of typical seasonal hay-fever patients are far above the average in health, so a thorough physical examination, prior to treatment, is not necessarily indicated, but a careful investigation of the nose, accessory sinuses, and throat, certainly should be made.

GENERAL HEALTH OF HAY-FEVER PATIENTS

In dealing with the hay-fever patient during the past few years my attention has been strikingly called to the fact that they are usually above the average in size and general health. On asking the question as to what other diseases they have had, a large percent of them will say, "I have never been sick;" so I have made special notes in my histories concerning this fact, and of the series reviewed, we found only one, or .33 of 1 per cent, who reported that her health had always been poor. Eighteen, or 6 per cent, reported only fair health, while 281, or 93.3 per cent, gave a history of excellent health. The per cent of patients reporting that their health had been exceptionally good seems high, but it is a very striking feature of the seasonal hay-fever patient. Every man who deals with allergy as a special line, has had this fact brought to his attention. The general resistance of these patients seems to be extremely high, so that if they develop any disease, whether it be infectious in type or otherwise, the tendency is for them to do much better than the average case. It is unusual to find patients with open pulmonary tuberculosis who are of the sensitive type. I know of a case, but in the 300 we have recently studied, there were none.

RELATION OF HAY-FEVER TO ASTHMA

Seasonal hay-fever is a hypersusceptibility of the ocular and nasal mucous membrances towards a pollen protein, while asthma is a hypersusceptibility of the bronchial tree towards a pollen protein or some other protein. The majority of patients whose nasal and ocular mucous membranes are sensitive to pollen also have a bronchial tree that is likewise sensitive, but inasmuch as the majority of pollen first comes in contact with the nose, nature as a means of protection produces a large amount of mucous and washes it off so that the bronchial tree does not receive a very large amount of pollen although it may be quite sensitive towards the pollen. For this reason a patient may go through the summer with marked hay-fever symptoms, yet have no tightness in the chest, indicative of bronchial spasms; but at the end of the season, after the pollen content of the air is only a tenth as great as it had been on previous days, a patient may have a typical attack of pollen asthma due to the irritating effects of the cold air that appears in the early fall. In other words, a bronchial tree may withstand a comparatively large amount of pollen, if the air is balmy, but as soon as the first cold rains appear in the fall, a small amount of pollen, with the cold air, may produce severe attacks of asthma. Many patients go through their entire life with typical seasonal hay-fever without ever developing asthma. However, a large per cent of hay-fever patients some time in life will become typical cases of seasonal asthma, and if they develop a sensitivity to some other protein besides pollen, their asthma will continue through the winter, or even in some cases, if they are not sensitive to some other material, such as animal epithelial or powder of various sorts, they probably may continue throughout the entire winter.

In our series, 86 or 28.3 per cent had asthma associated in the fall of the year with their hay fever. Of the cases we studied the average age at the time they were treated was 31.1 years. Many of the cases treated, who do not have asthma as a complication, will develop it later on. So far as I can estimate, and it is the estimate also of others working in this field, that about 60 per cent of all hay-fever people, some time in life, will develop asthma. The majority of my cases do not develop their asthma until they have had hay-fever several years. However, it is not uncommon to see asthma associated with hay-fever in the first year.

Since the number of hay-fever people who develop asthma is so great, it certainly impresses one with the importance of protecting the individual from his hay-fever symptoms, inasmuch as the same treatment is a preventive measure against asthma.

TESTING FOR POLLEN HYPERSENSITIVENESS

Most patients who have ocular and nasal mucous membranes that are sensitive to pollen, likewise have skins that are sensitive to the same pollen protein; and advantage is taken of this fact in determining the pollen or pollens responsible for the patient's symptoms. However, this is not true in 100 per cent of the cases. A small per cent, probably 1 per cent, have sensitive mucous membranes of the nose and eyes that can be determined by the ocular and nasal test, and have skins that are entirely non-sensitive to both dermal and intradermal tests. There are two definite methods of testing—the dermal and the intradermal. In testing for pollen sensitivity the dermal method is a good one. It showed a positive reaction in the

cases studied, in 98 per cent. However, some of the dermal reactions were very light and had to be read with considerable care. In these cases, with definite histories in which the dermal method is negative or is difficult to read, the intradermal method can be used. The technique for the dermal and the intradermal will not be described in this paper. In a previous article the technique has been described in detail.[3]

POSSIBLE CAUSES OF SEASONAL HAY-FEVER IN OKLAHOMA

As has been previously mentioned, the pollen from the wind-borne pollinated plants is the cause of all hay-fever. There may be a contributing factor occasionally, other than the pollen of the wind-borne pollinated plants, but it is never the sole cause. The elm and maple pollinates in the latter part of February and the fore part of March, and a few patients become sensitive to the pollen from these trees, but on account of the shortness of the period over which they pollinate, they are minor factors. The cottonwood begins its pollination between the 1st and the 7th of April and is a factor in certain sections. The oak pollinates during the latter part of April, but the period of pollination is short, consequently it has to be used only in a few cases. Bermuda, beginning to pollinate about the 15th day of May, and continuing until frost, is a very important factor either as a sole cause, or as a contributing one. In the cases studied we found Bermuda to be the sole cause in 13, or 4.3 per cent of the cases studied, and a contributing factor in 90, or 30 per cent.

About the 20th day of June, the amaranths and western water hemp begin to pollinate. In this state there are three amaranths — Amaranthus retroflexus, Amaranthus spinosus, and Amaranthus palmeri —that are scattered throughout the entire state; but Palmer's amaranth is not so generally distributed as are the other two. However, Palmer's amaranth is a very heavy pollinator and in those localities in which it exists, it is quite a factor. The other two amaranths are well distributed but are not big pollinators, and although patients are frequently found sensitive to their pollens, one usually finds such patients also sensitive to western water hemp. Since the water hemp is so abundant in plant life, and produces so much more pollens than the amaranths, its pollen should usually be used for treatment in those cases sensitive to both the amaranth and the hemp. The amaranths must always be kept in mind and if patients are sensitive to them and not sensitive to the hemp, by all means the amaranths should be used if symptoms appear during the season of polliation of the amaranths. The peak of the hemp and the amaranth pollinating period is the 10th to 15th day of July, at which time patients who are sensitive to the amaranths and hemp group complain of symptoms.

Of the cases studied western water hemp (Acnida tamariscina) was the sole factor in 11 cases, or 3.66 per cent, and was a contributing factor in 105, or 35 per cent. Western water hemp is a very interesting plant inasmuch as it is so extremely well distributed over the entire state, as its growth is very prolific in many sections. Much has been said in the literature concerning the amaranths as a cause of hay-fever but in this state western water hemp is about five hundred times as abundant in plant life, and it is at least one hundred times a better pollinator than any of the amaranths, so that the actual amount of its pollen that gets into the air is several hundred times greater than that of the amaranths. It is for this reason that I feel that western water hemp is such an important factor compared with its close relatives, the amaranths.

After a recent investigation of the plant growth of western water hemp throughout the entire United States, it is interesting to find that there are only a few states in which it is a factor, but in Oklahoma it is a very important one, as I have shown by the percentage of cases in which it is a definite factor[4].

Since so much has been said in the literature concerning ragweeds as a cause of hay-fever, both the laity and the physician have concluded that pollens other than rag weeds are of very little importance as a cause of hay-fever. Over many sections of the United States ragweeds are an important factor and likewise in Oklahoma they are very important, but one must keep in mind that they are not the only cause. In many cases they play no part and in other cases they are only a contributing factor. In our series ragweeds were the sole cause in only 76 cases, or 25 3 per cent. They were either the sole cause or a contributing factor in 266 cases, or 88.6 per cent. The fact that 88.6 per cent of the cases were sensitive to the ragweed shows their importance.

MULTIPLE SENSITIVITY

My findings show that in seasonal hay-fever patients, multiple cutaneous reactions are the rule and not the exception, and this has been confirmed by many workers in the field of allergy. It is striking to notice the number of positive cutaneous reactions which have nothing to do with the clinical symptoms. As an example, we find many patients sensitive to the golden-rod, golden glow, dandelion, sunflower, etc., all of which are insect-pollinated plants. We know that the pollen from these plants play no part as a sole cause of hay-fever and no part as a contributing factor unless they are used in decorating. Patients may become sensative to most any pollen, either insect-borne or wind-borne, but unless the pollen is wind-borne enough does not get into the air to cause symptoms. In the series studied, only five cases, or 1.66 per cent were sensitive only to one pollen protein. The remainder were sensitive to two or more pollens. The majority of patients that become sensitive to one of the ragweeds will become sensitive to all three, and if they have come in contact with all three, the pollen from all three ragweeds must be used. The patient that become sensitive to Bermuda, in the majority of cases will also develop a sensitivity to some other member of the grass family.

The botanical relation between the amaranths and western water hemp is a close one, so that in the large majority of the cases sensitive to western water hemp, sensitivity to one of the amaranths will be found. However, I have found a number of cases with a four plus sensitivity to amaranthus retroflexus that were absolutely negative to amaranthus spinosus, although it is a close relative. Likewise in this series I have found three cases sensitive to western ragweed that were entirely negative to giant and short. Bernton believes that a patient sensitive to giant or short ragweed also ought to be sensitive to western, because of the close biological chemistry of the pollen makeup.

Many seasonal pollen hay-fever cases are not only multiple sensitive to pollen but also are sensitive to other proteins, such as orris root, animal epithelial, etc. Multiple sensitivity to pollen is not given the consideration by the majority that it should have, and the lack of such consideration is the cause of many failures in pollen therapy.

SYMPTOMS OF HAY-FEVER

A pollen seasonal hay-fever case that is uncomplicated in type will have symptoms at a rather definite time of the year, and such symptoms will end with frost. Symptoms will consist of one or all of the following:

(1) Itching and lacrimating eyes.
(2) Itching and congested nose.
(3) Itching of the upper part of the mouth and back part of the throat.
(4) Itching of the ears (itching of the Eustachian tubes).
(5) Band-like frontal headache.
(6) General depression.

Sixty-nine per cent of the series studied gave the following symptoms: itching and lacrimating eyes, itching and congested nose, itching of the roof of the month and itching of the ears. Eleven per cent gave a history of the band-like frontal headache. Twenty-two percent had rather marked general depression during the season. As has been previously mentioned, at the end of the season or during the season 86 cases or 28.6 per cent had asthma associated with their hay-fever. Many typical seasonal hay-fever cases are also complicated with sensitivity to some other inhalant protein, consequently their symptoms will not disappear at frost and they will complain of having some symptoms throughout the year, but being more marked in definite seasons, when the pollen gets into the air.

It is my experience that a sensitivity to protein, other than pollen or orris root, will not cause much itching of the eyes or increased lacrimation of the ocular mucous membrane, but other protein inhalants, such as feathers, pyrethrum, etc., will cause the itching of the roof of the mouth and especially is this true of feathers, animal epithelial of all kinds and pyrethrum.

TREATMENT

There is probably no other disease that has had as great a variety of methods tried for the relief of symptoms as had been used in the case of the hay-fever patient. The typical seasonal hay-fever case should have a reduction of the protein diet during the season. Estivin can be used in the eye as a mild astringent. Various bland oils can be used on the mucous membrane of the nose as a mechanical means of protecting the membranes from the irritating pollen. The above suggestions will give slight relief in some cases. In

typical seasonal hay-fever cases seldom is there ever found polypi or infected paranasal sinuses. In the perennial cases however, polypi and infected paranasal sinuses are very common.

IS SEASONAL HAY-FEVER A SURGICAL DISEASE?

Until the last few years, a large number of typical seasonal hay-fever patients have had one or more of their turbinates removed, and in taking histories I find that a number of my patients, whose disease is of long standing, have had a lot of surgical work of various sort done to the nose. It is gratifying to note, however, that the newer cases have learned from the experiences of some of those who have suffered for a longer period of time, and who were operated on, had results that were not satisfactory. It is also gratifying to note that the nose and throat specialist today, who is a good observer, has learned that the less that is done to the nasal mucous membrane of the seasonal hay-fever patient, the better it is for that patient. They have also observed that in many of the perennial cases of hay-fever that have complicated with their hay-fever infected sinuses, that the same infected sinuses would drain themselves if the offending proteins were removed, thereby allowing the mucous membrane of the nose to become normal in size.

After a study of this problem for some time, I feel confident that the less local work of any sort that is done to the pollen seasonal hay-fever patient, the better off he is. I advise him to do nothing except instill into the nose or sniff into the nose some bland oil as a simple means of covering over the mucous membrane, thereby protecting it from the pollen.

Pollen seasonal hay-fever people who are complicated with a sensitivity to other proteins, frequently will develop sinusitis, infected antra or polypi in the nose. Such cases, by all means, should have the polypi removed, and the infected sinuses and antra drained, but this work should be done, if possible, at least six weeks prior to the onset of the pollen season, inasmuch as the surgical procedure will increase, to some extent, irritability of the mucous membrane.

Of the 300 cases studied, only 22 had either one or more turbinate bones removed. Of these 22, seventeen had associated with hay-fever asthmatic attacks either during the active season or towards the end of the season. In other words, 77.2 per cent of the typical seasonal pollen hay-fever cases that had been operated on had associated with their hay-fever, asthma.

The percentage of all cases studied who suffered with hay-fever is 28.6 per cent. Comparing this percentage with that of those who had their turbinates removed, makes one feel that removing turbinates has something to do wih bringing on asthmatic attacks. I personally have been made to believe from observing asthmatic cases in children, that the removal of tonsils is not the cause of some asthmatic children's being relieved from symptoms by the operation, but it is the removal of the adenoid tissue that is done at the same time, inasmuch as this allows the child to breathe through the nasal mucous membrane instead of the mouth, thereby warming the air before it reaches the bronchial cul de sac. I also have been made to believe that in pollen seasonal hay-fever cases whose turbinates have been removed, that the proneness towards asthma should be much greater, inasmuch as the air that is taken into the bronchial tree is not warmed sufficiently and more pollen actually comes into contact with the bronchial mucous membrane.

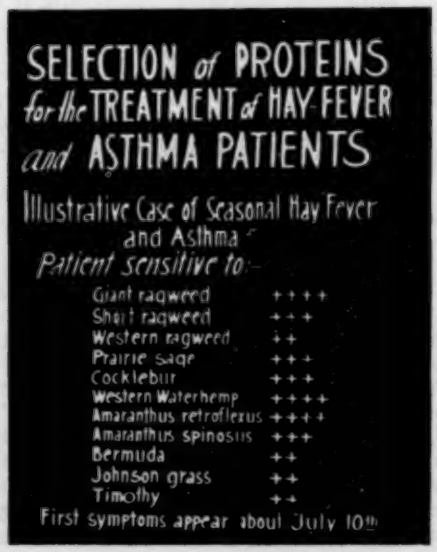
POLLEN THERAPY

Much has been said in the last few years pro and con concerning pollen therapy as a means of relieving seasonal hay-fever patients. Many physicians have treated seasonal cases by desensitizing them with pollen extracts without relief and have become somewhat disgusted concerning pollen therapy, and their patients have likewise been disappointed, and thereby are made to believe that there is nothing in pollen therapy. However, if one will stop and analyze the situation very carefully he will find it not difficult to understand why doctors have become somewhat disgusted with pollen therapy. In the first place patients, who have seasonal hay-fever, are always sensitive to one or more pollens and generally they are sensitive to more than one. In our study we found out of 300 cases 76 cases in which ragweed was the sole cause of symptoms; that 11 cases had their trouble due to western water hemp, and in 13 cases, Bermuda was the entire cause of trouble. This makes a total of 100 cases, or 33 1-3 per cent. In other words, 66 2-3 per cent of all cases studied had more than one group of pollens that were very definite factors in the cause of their symptoms. However, the

fact just mentioned is usually not taken into consideration by the majority of men in the treatment of hay-fever by pollen therapy.

A patient comes into their office complaining of fall hay-fever. He is treated with ragweed pollen extract without relief. However, a history will elicit the fact that his symptoms began in July and they became more aggravated in August, or the patient will tell the story how his symptoms were only fairly bad during May and June, but became more severe in July and very severe in August and September. On being tested, such a patient will probably be found to be sensitive either to Bermuda, some of the amaranths and ragweed, to the amaranths and the ragweed, or to Russian thistle and the ragweed. Such a combination as has been mentioned is very common. According to the cases I have studied, in at least 66 2-3 per cent of the cases such will be the findings. It has been my experience that a case who is sensitive to ragweed and who is also sensitive to Bermuda or one of the amaranths or to the thistle, will receive poor results if he is treated with ragweed only. He must first be desensitized against the pollens to which he is sensitive that appears in the air prior to the ragweed season, so that he can go into the ragweed season with a comparatively normal mucous membrane.

For example, the following is a very common finding in testing a patient:



The illustrative case shows sensitivity to many pollens and yet only certain ones should be used in treatment. The patient's symptoms begin July 10th, more than a month prior to the time that ragweed pollen gets into the air. During this time, Bermuda and western water hemp, both of which are very prevalent in the state of Oklahoma, are pollinating. The patient will frequently tell you that his symptoms are only moderately severe in July and that he could get by fairly well, but that in August the symptoms are unbearable; and the doctor says, "Why treat with western water hemp and Bermuda? Why not treat these patients against the ragweed only, inasmuch as it is during August that they have so much trouble?" I wish once more to impress you, as I tried to in the foregoing paragraph, that unless this patient is desensitized first with western water hemp and Bermuda before he is desensitized against the ragweed that you cannot hope for results.

The correct pollen or pollens for treatment must first be chosen, and the failure to do this is one of the main reasons why good results in pollen therapy are not obtained.

POTENT EXTRACTS ARE IMPORTANT

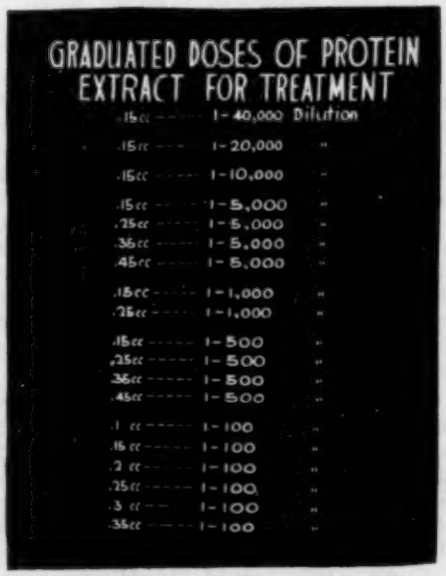
Potent pollen extracts and extracts put up in such a form that the dosage can be carried up to the tolerance point and from that time carried through the season, are desirable. Commercial houses insist on combining pollens in one extract. The pollen extract that has probably the greatest sale in the United States is one made up of Johnson grass, Bermuda grass, and short and giant ragweed. If you will stop to analyze such an extract you will find that your rag weed product is being diluted down with your grass to such an extent that it would be impossible to get results. That is, if your patient is a ragweed case, the extract is not sufficiently potent to desensitize your patient; likewise if the patient be a grass case, your grass extract has been diluted down with your ragweed product.

It is quite pleasing to the doctor of course and also to the patient, to think that if he has hay-fever starting early in the spring and extending during the entire summer that one pollen product could be used for desensitizing, but this cannot be done, as it is entirely out of order to mix any two botanical groups, i.e., to mix a ragweed group with a grass, or the ragweed with the amaranth family, etc.

Commercial firms also have a tendency to want to give each patient the same number of doses, i.e., Mr. Brown, who weighs 225 pounds will have fifteen doses of some pollen extract to desensitize him against that pollen. His wife, who weighs 95 pounds, will receive the same number of doses. Is this logical? It is not the way other therapy is done.

CORRECT METHOD FOR POLLEN THERAPY

There is only one method for the use of pollen therapy, and it is pretty well accepted by the men dealing in this field of work, and that method is to be specific as far as possible. For example, giant ragweed is a very close relative to short, and likewise to western ragweed. It is such a close botanical relative that desensitizing against short ragweed can be done with the giant ragweed extract, but with only about 60 or 70 per cent as good results. The western ragweed should be used if the patient is sensitive to western ragweed instead of giant. This is likewise true of pollens in other groups, i.e., desensitizing against Bermuda can be done with Timothy since Timothy is a member of the grass group, but results are not nearly so satisfactory after such desensitizing, as would be obtained with Bermuda extract. In the majority of cases specific extracts can be obtained and are desirable.



HOW TO DETERMINE THE TOLERANCE DOSE

As one gradually increases the doses in pollen treatment, he will necessarily come to a dose that will give a local or a general reaction, which will indicate that he has desensitized his patient sufficiently. If in treatment, for the sake of illustration, one gives .2c.c. of the 1:100 dilution and a fairly marked local reaction appears on the arm, or hay-fever or asthmatic symptoms are encountered, the next dose of the extract should not be increased but should be .2 c.c. of the 1:100 dilution. If this dose should give a local or a systemic reaction, it should be counted the maximum dose for that patient and from that time on, from seven to ten-day intervals, depending on the severity of the pollen season, it is wise to give a dose of the extract of the same size or just lower than the maximum dose. In other words, in this case, it would be .15 c.c. of the 1:100 dilution. If, on repeating the same sized dose the second time, no reaction is encountered, one is justified in stepping a little bit higher, say for the sake of illustration, up to .25 c.c. of the 1:100 dilution, and then if a reaction is encountered, repeat the .25 c.c. of 1:100 dilution again, and if a reaction is encountered on the second time, one must consider that, the high dose.

Always remember that in protein therapy, if a marked local or systemic reaction is obtained, that the symptoms can be relieved by giving 7 1-2 minims of 1:1,000 of adrenalin hydrochloride subcutaneously and repeat if necessary for the relief of symptoms within a half hour.

At the present time there is a new drug, ephedrin sulphate (fedrin) which relieves the untoward symptoms just as does adrenalin, and a good plan to follow is to have the patient carry with him two fifty-milligram capsules of ephedrin sulphate and explain to him that he may have hives, asthma or hay-fever following some of the high doses, and if at any time following treatment he should notice a tingling of the fingers or itching of the body, suggestive of hives, or any tightness in the chest, or hay-fever symptoms, that he should take one of the capsules immediately, and repeat in a couple of hours if necessary for the relief of symptoms. The author uses ephedrin sulphate routinely in this way. Both ephedrin sulphate and adrenalin overcome the symptoms by stimulating the sympathetic fiber of the autonomic nervous system.

PRE-SEASON TREATMENT

The treatment of choice is pre-season. The tolerance of the individual should be

gradually built up, prior to the season, at five day or four day or three day, or two day intervals, so that the maximum dose is reached a few days previous to the onset of symptoms, and then the maximum dose or a dose just beneath the maximum should be carried through the season from six to ten day intervals, as has been previously mentioned. In our series 208 cases were given pre-season treatment, with excellent results in 121 cases, or 58.1 per cent; good results in 75 cases, or 31.2 per cent; fair results in 10 cases, or 5 per cent; and poor results in 2 cases, or 1 per cent. By excellent results is meant the elimination of practically all hay-fever or asthmatic symptoms. By good results is meant the elimination of 80 per cent of hay-fever or associated asthmatic symptoms. It is considered that the elimination of 50 per cent of symptoms is a fair result.

CO-SEASON TREATMENT

Co-season treatment was done in 92 cases and the results were as follows: Excellent results in 35, or 42 per cent; good results in 41, or 44 per cent; fair results in 11, or 10.9 per cent; and poor results in 5 cases, or approximately 4 per cent. The same standard as to meaning of excellent, good, fair and poor results in co-season treatment is used as above in pre-season treatment.

In comparing the percentage of excellent and good results of pre-season and co-season treatment one can easily see that pre-season treatment is better. However, since 42 per cent of the cases received excellent results in co-season treatment, and 44 per cent received good results in co-season treatment, one is certainly justified in treating those cases after their symptoms have already appeared. Such patients can be advised that their results will be better if pre-season treatment is used, and can be advised that pre-season treatment is more efficient, and can be told when to come for treatment the following year.

The 300 cases of seasonal hay-fever that are here presented, have been studied rather carefully and deductions from the study have been drawn and presented in the preceding paragraphs. I trust that it will be of value to others who are interested in such work.

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SCHICK TESTING AND DIPHTHERIA IMMUNIZATION IN MUSKOGEE COUNTY

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During September, October and November, 1927, eight deaths occurred from diphtheria in Muskogee County, among infants and pre-school children, seven of them white and one colored. Some of these children lived in remote parts of the county, there was delay in treatment and four died in spite of large amounts of antitoxin. The virulent character of the disease, together with the fact that antitoxin had failed to save some of these lives, made the need for diphtheria immunization especially urgent. Through articles in city and county papers, distribution of literature and talks given before teachers and pupils in the county schools, people were acquainted with the facts regarding susceptibility to and active immunization against diphtheria.

Schick testing was begun early in November, one object being to determine the percentage of susceptibility to diphtheria in the various age groups. During November and the early part of December, 1699 Schick tests were performed, with distribution as follows:

Eight public schools in Muskogee County	831
Muskogee children in office of Co. Health Dep't	386

Two colored schools in Muskogee County	282
Oklahoma State School for the Blind	200
Total	1699

TECHNIQE OF THE SCHICK TEST AND CHARACTER OF REACTION

The material for the test (E. R. Squibb and Sons) consists of a small vial with a drop of undiluted toxin, and a bottle containing 10 c.c. of saline, sufficient for 50 tests. The toxin is transferred to the bottle of saline immediately before using. 0.2 c.c. of the diluted toxin is injected intracutaneously in the skin of the forearm, the liquid forming a button-like swelling which disappears after a short interval. Observations were made on the fourth day following the test. Positive Schick tests are striking, consisting of a small central area of discoloration, surrounded by an area of induration and redness round or oval in outline, the longer diameter often being three to four cm. In colored children a positive reaction is no less striking, there being a central spot of black discoloration, surrounded by an oval area of redness and infiltration extending lengthwise on the forearm. The skin over this be one of the best means of arousing interest on the part of the parents, the red area on the arm bringing a realization of potential danger and of the importance of the immunizing treatments. In one of the towns people of the community were ready to do anything, several deaths from diphtheria having occurred, and many children area scales and remains rough and clearly outlined, especially marked in colored children, for a period of from two to three weeks.

Table 1 shows the percentage of susceptibility for males and females in the various age groups, in a total of 648 children in seven public schools of Muskogee County. (Note: A number of the pupils in one of the schools had received immunizing treatments the previous year; these are not included in table shown on this page).

ACTIVE IMMUNIZATION

This consists of three inoculations of 1 c..c. each of toxin-antitoxin, given at seven day intervals. In Muskogee, the parents were urged to take the susceptible children to their physician at once for immunization. The Schick test proved to

Table 1—Schick Tests in Muskogee County Schools, 1927

Age Groups	MALES			FEMALES			TOTALS			PER CENT SUSCEPTIBLE		
	Susc.	Imm.		Susc.	Imm.		Total	Susc.	Imm.	Males	Females	Total
1	1						1	1	0	100		100
2	4	1		2	0		7	6	1	80	100	86
3	2	0		1	0		3	3	0	100	100	100
4	5	2		3	1		11	8	3	71	75	73
1 to 4	12	3		6	1	22	18	4		80	86	82
5	0	0		3	1		4	3	1	0	75	75
6	9	8		16	8		41	25	16	53	67	61
7	8	15		7	17		47	15	32	35	30	32
8	11	20		10	20		61	21	40	35	33	34
9	9	23		18	19		69	27	42	28	49	39
5 to 9	37	66		54	65	222	91	131		36	45	41
10	4	21		15	20		60	19	41	16	43	32
11	9	15		13	13		50	22	28	38	50	44
12	9	19		9	21		58	18	40	32	30	31
13	7	24		9	26		66	16	50	23	26	24
14	10	22		7	22		61	17	44	31	24	28
10 to 14	39	101		53	102	295	92	203		28	34	31
15	3	22		6	23		54	9	45	12	21	17
16	2	11		9	13		35	11	24	15	41	31
17	0	7		3	4		14	3	11	0	43	21
18	2	1		1	1		5	3	2	67	50	60
19	0	1		0	0		1	0	1	0	0	0
15 to 19	7	42		19	41	109	26	83		14	32	24
Totals	95	212		132	209	648	227	421		31	39	35

were given the toxin-antitoxin by the local physician. In Haskell, through the hearty support of the superintendent of schools, nearly all the children from the primary grade through the junior high school were first Schick-tested and the susceptibles given active immunization by the family physicians.

Tragedies having occurred in the country districts, toxin-antitoxin treatments were given without preliminary Schick testing, in many of the district schools. 1,146 complete immunizations were given by the personnel of the County Health Department. No harmful effects were reported.

SUMMARY

1. Schick testing is valuable in pointing out beforehand the group of children that would be likely to develop diphtheria in an epidemic. A positive test also leads parents to act when they might otherwise defer immunization.

2. This is one field among many in which physicians and public health workers need to work hand in hand.

3. Active immunization against diphtheria merits the hearty support of all physicians, who can do much toward lessening the incidence of diphtheria by educating their clientele and immunizing children early in life.

Metropolitan Building.

A SKETCH OF THE HISTORY OF SURGERY

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(Read to the Rotary Club, Miami, Oklahoma, Dec. 20, 1927.)

Gentlemen: It is with no small degree of hesitation that I undertake to address you on The History of Surgery, and to call my paper a "Sketch" will be more appropriate; and I am not accustomed to addressing audiences other than doctors, and it is well known how difficult it is to speak the language of medicine in terms that may be understood by the layman; but I am honored to be here on the invitation of our friend, Dr. DeArman, and I shall do my best to make it worth your time; and I shall ask your close attention, for the field is so wide and the material so abundant, that I have been compelled to condense to a minimum what could be expanded to fill a large volume. I shall try to present to you a brief history of surgery from primitive times to its full development in our own day.

Surgery is distinguished from medicine, even among primitive people, by the employment of instrumental and manual methods of treatment; it is as old as the human race and human needs; a certain skill in the stanching of blood, the extraction of arrows and other puncturing bodies, the supporting of broken limbs with splints, and the like, together with a reliance on the healing powers of the tissues, has been common to all men at all times and places, with all primitive peoples as well as the most advanced of the ancients in Egypt, Babylonia, China, India and the Heroic Age of Greece.

In both branches of our ancestral stock, the people of India and of Europe, surgical practice as well as medical reached a high degree of perfection at a very early peiod ; among the former, in collections of writings under the names of Charaka, the older, and Susruta, later, whether these were actual names of men or of schools, ranging in date from 500 B.C. to 500 A.D., some dextrous and delicate operations are described. In the Susruta, 121 instruments are described that were made of steel, well shaped, with good handles and joints, with excellent cutting edges; they were to be kept perfectly clean, wrapped in flannel, and in a tight wooden box. Many of these early surgical instruments were like those in use today, and a splint for treating fractures, made of cane and rattan, was adopted by the British Army of India. Fractures were diagnosed and classified as today, and treated in the same way with splints, bandages and extension; wounds were divided into the same classes as with us, and treated very much as we do now; cuts were sutured, foreign bodies were extracted, and even a magnet was used to extract iron and steel bodies; bleeding was done, inflammations were treated by diet and poultices or fomentations; amputations were done, but they had not discovered as simple a thing as the ligature, but depended on boiling oil and pitch to stop bleeding, which helped some by the antiseptic properties of the heat and the materials; appropriate bandages were applied, and operations for various abdominal conditions were performed, and they became really skillful at removing stone of the bladder; repair of injuries of the nose and face were made by flaps from the face, transferred to the

place needed and left with a connecting pedicle, until union was secured, as is done today; various obstetrical operations were done, and even caesarian section; for every emergency, and for every known form of injury and disease, there were minute and elaborate directions given; different surgical operations were taught to the students with wax forms, dead animals, and flexible models of the human body; the various compounds of arsenic, copper, zinc, mercury and iron were known and used, and a knowledge of anatomy was deemed necessary, though their religion forbade dissection of the human body; all in all, a marvelous amount of knowledge and skill for so early a time, and, with the means at hand, wonderfully successful.

The Chinese were far behind the Hindus in knowledge of medicine and surgery, because of their reluctance to draw blood, or perform any operation on the human body, because they were forbidden to do so by their religion, which we shall see as we progress, has always been an obstruction to progress in the sciences. The distinctive and the only contribution of the Chinese to surgery or medicine was acupuncture, or puncturing the skin at the site of a pain with needles, and is still described in fairly recent text-books, but, at the best, a crude treatment. So we may dismiss the Chinese, who, in spite of five thousand years of civilization and history, have contributed nothing to either medicine or surgery, in ancient or modern times, because of their religion; such, we shall see later, is the blighting and withering effects of a dominating religion on the life and progress of a nation, whether in China, 2000 B.C., or 1926 A.D. in the hills of Tennessee.

In Egypt history goes back to as remote times as anywhere else in the world, but for the same reason as with Chinese, a religion of authority, fixed and unalterable, and a dominating priesthood, there was little progress in either medicine or surgery. But on monuments and walls of temples are figures of patients being bandaged or undergoing operations; mummies have been found with well set and healed fractures. Herodotus, who visited the country, described Egypt as being filled with specialists, particularly in operations on the eye, as their location, bordering on a sandy desert, would favor the incidence and prevalence of eye diseases, but this was all.

We shall now devote some time to the most wonderful people that have lived and worked, thought and wrote, in all the history of the world, the Greeks. Their earliest writings bear witness to a long growth of knowledge and skill. In the Iliad of Homer, the surgery is that of the battlefield, but of the most meager kind; Machaon and Podilarius, sons of Aesculapius, were the surgeons of the Greek army, but aside from binding up the wounds of the warrors, there is nothing of importance. But about 460 B.C., there arose a genius among the Greeks whose works are still outstanding landmarks in the history of medicine and surgery, and whom we regard as the Father of Medicine, Hippocrates—he came from a long line of the Asclepiadae, or medical practitioners and his grandfather and two grand sons bear the same name; the advanced condition of medical art among the Greeks of his time bear witness to a long period of development, and Hippocrates had much in the works of his predecessors on which to build his monumental and enduring work. The legendary Aesculapius had been defied, and temples of health, called Asclepiae, presided over by members of the fraternity called Asclepiadae, were erected in various parts of Greece as receptacles for the sick, and to which invalids resorted or were brought for the cure of diseases under the same circumstances as they now go to hospitals, sanitariums, and health resorts. Most of these temples were built at Thermae, or hot, medicinal springs, and the waters helped in the treatment of various diseases; at his entrance, the applicant was directed to go through a course of baths as a purification; abstinence from food for a few days was required and it was known then, as now, that rest, diet, change of surroundings, cure many human ailments.

In the beginning of the fifth century B.C., the temples at Rhodes, Cnidus, and on the island of Cos were held in especial repute, but that of Cos is of the greatest importance for us for having produced the individual who in all after ages has been known as Hippocrates, the Father of Medicine, and he is one of the foremost and outstanding men of all time. The purity of his life and ethics is well known from his Hippocratic oath, familiar to us all today, but preceding him, aside from the Homeric poems, the origin of Greek medicine and surgery is involved in impenetrable obscurity, being prior to all

recorded history; but there is no reason to think that much or any had been imported from Egypt or India, and at the time of Hippocrates, it had attained a remarkable degree of proficiency; he flourished at one of the most remarkable epochs of the intellectual history of mankind, and had for contemporaries, Pericles, the statesman and builder, the poets, Aeschylus, Sophocles, Euripides, Aristophanes and Pindar; the philosopher, Socrates, and his disciples, Plato, Xenophon, and Aristotle; Herodotus, the Father of History, and the younger Thucidides; the unrivalled sculptor, Phidias, and many other celebrated and distinguished names that have conferred immortal honor and fame on the tiny area of Greece and their age. Confucius, Buddha, and Zoroaster had left the stage of life but a few years before this time, the justly celebrated Periclean Age of Greek superiority in all the arts and sciences and philosophy. As a medical authority, Hippocrates stands pre-eminently illustrious for all time, and he left monuments of his genius more enduring than the marbles of Phidias, and as permanent contribution to the literature of the world as the writings of Plato and Aristotle, or the tragedies of Aeschylus or Sophocles, or the Odes of Pindar. He discarded the irrational theories of accumulated tradition, and all his descriptions of diseases, and all his surgical operations are derived from patient observation, and his conclusions are based on his own experience and common sense; more so than any other man for more than 2000 years after him; he knew the medicine of his time and had a good knowledge of anatomy; in the practice of surgery, he was a bold operator; he opened the skull with the trephine, for injuries of the head; he opened the chest for empyema and hydrothorax; his extensive work made him acquainted with all kinds of fractures and dislocations, as his treatises "On Fractures", and "On Dislocations" abundantly testify; and until fairly recent times, the treatment of fractures was far inferior to that of Hippocrates, and as to the nature of club-foot, he was 2400 years ahead of all others in saying that there is no dislocation, but a deformity, to be cured by appropriate bandaging, as that now done in any modern hospital for treatment of the deformities of children; his writings are models of conciseness, finish, "as much as possible in as few words as possible" and many of his Aphorisms are admirable today, as the one, "Life is short, the art is long, experience fallacious and judgment difficult". (Adams, p. 192.)

I have given this much space and time to Hippocrates because he is entitled to it, and because that for more than 2000 years he was a mountain peak, compared with the decadence and the dead level of the dark ages that followed him, and I shall revert to this later, for the reasons for the retrogresion.

After the age of Hippocrates, there was a decline in knowledge and but little change except for the worse, for 700 years, until the period of Alexandria, which stands out prominently for the study of anatomy, led by Herophilus and Erasistratus, and the boldness of operative procedures, and division of the art into a number of specialties. Herophilus boldly used the knife on internal organs, the liver and the spleen, the latter of which he considered of little importance, and we moderns have small reason to reverse his opinion of that organ; Lithotomy, or operation for stone in the bladder, was much practiced, and his instruments for performing that operation were much like those of the present day.

Celsus, in the reign of Augustus Caesar, at the time of the greatest glory of the Roman Empire, in his writings reflects the state of medicine and surgery of his day and for a period of several centuries preceding him in his work, De re Medica, and in the 7th and 8th chapters, gives a synopsis of Hindu and Greek surgery; an account of amputation of a limb is given in detail for the first time, and he also describes operations on the chest, and those for hernia. We owe much of our knowledge of the genuine writings of Hippocrates to Celsus, by reason of his quotations and comments and his sayings which were and which were not genuinely Hippocratic writings.

The next great figure in the history of medicine and surgery, for we cannot separate them, is Galen, of 130 A.D., but there is little of surgical interest in his writings, though they are important for anatomy, physiology and theories of disease, and the preparation of medicines derived from plants and still called Galenicals; but surgery was in a flourishing condition at this time and all over the Empire, as the descriptions, preserved by Oribasius, testify and Antyllus, who flourished A.D. 300, is regarded by the historian, Haser, as one of the world's greatest surgeons, consider-

ing his means at hand. An operation for aneurysm still bears his name; he operated for cataract, contractures, hernias, and urethral strictures, used ligatures on arteries, the first recorded in history, and did skillful operations on the head and face as well as on other parts of the human body.

Then another gap in progress for 350 years, to Paulus, of Aegina, who summed up three centuries of decadence and progress. His translator, Francis Adams, says: "His Sixth Book contains the most complete system of operative surgery which has come down to us from ancient times. Haly Abbas, 994 A.D., copies almost everything from Paulus; Abulcasis, of the tenth century, gives more original matter than any other Arabian author, but he is almost entirely indebted to Paulus, so with Rhazes and Avicenna, Arabians that became very proficient in medicine and surgery, but made no advances beyond Paulus. The account of fractures and dislocations given in Hippocrates and Galen may be regarded as almost complete, but Paulus went far beyond them in actual work and in the application of the art of surgery; his sixth book brings the surgery of the ancient world to a focus, with no improvement till the time of the Frenchman, Ambrose Pare, and for the intervening 500 years, there is nothing to record save the establishment of a hospital at Lyons, 560, A.D., and one at Paris, 660, and at Montpelier, 1025; much of the medical and surgical practice was in the hands of the priestly orders, especially the Benedictines, but the practice of surgery was forbidden to them at the Council of Tours, in 1163. But original investigation had died out, and there were no bold and daring spirits to continue the work of the fathers of Surgery, and for the reasons, we shall have to retrace our account, and revert to the Semitic Race, and its contribution of a religion of authority, an organized priesthood, a collection of anient writings of ignorant and superstitious men, as of supernatural origin, these being the cause of the ignorance, superstition, decay of all the contributions of the Greeks and Romans in science, art, literature, laws and learning, imposing fetters of priestly rule, obstacles to any progress, complete suppression of the intellectual freedom of man, for 1500 years, and is still in full force and effect today; but its organization and structure, the strongest and most enduring in all the history of the human race, is slowly crumbling under the assaults of bold and daring minds since the time of Galileo and Descartes, and the Renaissance, or modern enlightenment. Our ancestors have passed through a long, dark bloody period of myth, magic, superstition, belief in legends, of authority of priests and worship of many gods in ritual and religion, and now it is to be hoped is entering upon a time when science, knowledge will be the directing force, leading to the service of humanity instead of the supernatural.

In Egypt, the valley of the Nile in Africa and in the valley of the Euphrates and Tigris rivers, in Asia, are found the most ancient records, monuments, temples and recorded history of the human race; both flourished at about the same time, and both made wonderful advances in civilization, especially in building temples and monuments to their gods. The entire life and activities of these people were devoted to the religious ideas of appeasing and gaining the favor of the gods; the clear air of both countries favored observations of the stars, and they gave us the divisions of the year, the months, the week of seven days, and even the hours and minutes of the day, but the entire life of the people was a never ending observation of religious rites and ceremonies and nothing else, but perhaps war, mattered. The Code of Hammurrabi, 2250 B.C., is evidence of a high state of civilization by its laws, and the Hebrew Legends of Creation ,the Garden of Eden, the Flood, Noah and the Ark, are but revised and abbreviated editions of the Babylonian legends of more than 2000 years earlier. The Code of Hammurrabi gives some of the penalties for failure in operations by the surgeons of the time; like many of our own laws, they were either ignored, or a surgeon would have been a bold and daring man to risk his life and property if he had a bad result with a simple operation. It might be supposed that as old as are some of the Hebrew writings, that we would learn some of the medical and surgical art of their time from those that have been preserved for us in the older books of the Jews, which were written and re-written, edited and re-edited, combined and added to by every scribe that copied the older ones, finally taking form as we have them in the Hebrew Bible about 300 B.C., but its stories are only poor copies of earlier ones, its historical parts sadly lacking in any exactitude, its science and art only

that of any other barbaric people, and the only surgical procedure recorded by them in this scrap-book of poor history and worse religion is that of circumcision, a ceremonial rite that had been performed in the same barbaric way by other primitive tribes all over the world, and not original with the Jews; and these Jews, who have played so large a part in the later history of the western world, gave us no science, no art, and a literature, that, judged by any critical comparisons with the exception of a small part here and there is poor indeed, but they did give us their religion, based on their conception of a tribal god, Jahveh, jealous, cruel, vengeful, deceitful, like any other oriental despot or tyrant; their entire life and activities were given to appeasing his wrath and gaining his favor, and with its later developments in the Roman Empire has left its record of intolerance, sectarian hatred, war and blood-shed over the western world for 2000 years; nothing was of any importance but a satisfactory relation to a supernatural being, and an assurance of some degree of happiness in a life hereafter to make amends for the miseries of life in the world; the conception of humanity, altruism, making life better and more endurable is the product of knowledge, science, and the broadening culture of the last century more than all previous time, and we may include all other religions, except the Greek, in this same indictment. Why did the remarkable attainments of the Hindus fade into nothingness, and they are today sunk in ignorance, superstition, filth and disease? The answer is, their religion. Why did the Chinese never develop any science worth mentioning? The same answer. Brahmanism and Buddhism both teach the utter worthlessness of human life and the uselessness of human endeavor against fate, Kismet, the god, hence why struggle against them? Why try to avert sickness, pain, poverty, filth, disease, death, for life is nothing, the hereafter everything. Why did the wonderful progress of the Greeks and the Romans die out, almost as if they had never been, in the Dark Ages of Europe? The fundamental idea of Christianity is the same as the other oriental religions, and it *is* an oriental religion, engrafted on western civilization; it taught that life is nothing, the hereafter all, and conformity to the priestly interpretation of obscure and vague texts the all in all of human life; sickness, pestilence, disease, famine, poverty, sin, were the punishment of an angry and jealous god, and war was the principal occupation of his people; the divine favor was only secured by unquestioning belief and groveling worship and obedience to the rules of the church, and those who did not believe and worship in conformity to the dominant majority were dealt with singly in dungeons, prisons, auto-da-fes, or in wars of extermination, instead of practicing the teachings of the Nazarene. Europe was a continuous battle ground for fifteen centuries; instead of cultivating the arts and sciences, they persecuted each other with fire, sword, prison, and death; no one dared question or deny accepted authority on pain of prison, torture, seizure of property or death; not only medicine and surgery, but all forms of knowledge, except that little sanctioned by the church, was totally suppressed by the blighting, withering, smothering hand of priestly rule, and ignorance, intolerance, superstition, in the guise of religion, ruled the world for fifteen centuries; but we have made some progress; beginning 400 years ago, with Galileo, Bruno, Kepler and Copernicus, daring spirits began to question the authority of the church to suppress the activity of the human mind; the best work on this period is that of Dr. Andrew D. White, in his work, "The Warfare of Science and Religion"; such martyrs and heroes for the freedom of the mind, and the advancement of knowledge, as Galileo, Savanarola, Servetus, Spinoza, Voltaire, Hume, Huxley, Darwin, Kant, and thousands of others, have gained a reasonable degree of intellectual freedom, but we see today the dying struggles of the same superstition and ignorance in the widely expressed opinion of spokesmen of the ancient god that the Florida storm was a visitation of the wrath of the Almighty for the sins of men, and also in the so-called "anti-evolution laws", that have been passed in Tennessee, Mississippi, Alabama, and the passage of which has been or will be attempted in several other states, as an entering wedge for the control of the public schools by the church. But such laws only add impetus to the progress they would crush, and are like the noted Mrs. Partington, who would sweep back the tide of the sea with a broom. If science has any motto at all, it might be the gem found among much more of less worth, "Ye shall know the truth, and the truth shall make ye free"; free to investigate, and find out the wonderful ways and works of nature, and let the

truth lead where it may, and any system, church, religion, politics not based on truth and freedom will perish. The legends of Genesis are well worth study as ancient literature, but as fetter to bind the mind of man are obstacles to progress. Like many other old things, they are worthy of respect for their human interest, but they have served their time and age, and if the advocates of Genesis choose to set its primitive account against history, geology, astronomy, and modern knowledge, so much the worse for Genesis and its advocates.

With this rather long attempt at giving a reason for the decadence of learning from the acquirements of the ancients, we shall resume the account of surgery; the dead level of decadence and submission to the church continued unbroken during the middle age, with the exception of a few names, as that of William of Saliceto, and his pupil, Lanfranchi, and of Pitard, who accompanied Saint Louis on his crusade to Palestine, but modern medicine and surgery begins with Paracelsus, Andrew Vesalius, Gabriel Fallopius, and above all, Andrew Pare; the great merits of Paracelsus were not so much as a reformer of surgical procedure, but rather as a direct observer of natural processes of diseases and their treatment; his description of hospital gangrene is true to the disease, and his observations and theories of syphilis are sound and true and he pointed out the connection of goiter of the parents and cretinism in the children, and he left two works on surgery.

Ambrose Pare (1510-1590), threw aside tradition and used his own resources. Instead of treating gunshot wounds with hot oil and pitch, he used simple bandages and dressings, and revived the use of ligatures to prevent hemorrhage. The introduction of firearms had revolutionized the surgery of war, and Pare was quick to adapt his practice to the new conditions. His work in the crude field hospitals, on the battlefield of the wars of France read as if it were written but recently, with the exception of the lack of anaesthetics and antiseptics; he wrote a work on War Surgery in 1545, retired to study anatomy, and in 1550 gave the world the first treatise on that subject; his most memorable achievement was to get the ligature adopted, and make amputations safe and possible for the first time in all history. He wrote in the language of the people, instead of bad Latin, and was free from the mystical theories that spoiled the writings of Paracelsus; he was adored by the army, and greatly esteemed by successive French kings, but as frequently happened in after time with innovations, he was opposed by the faculties of the colleges, and he had much opposition in getting the ligature adopted, strange as it seems to us now. Surgery of the 16th century underwent the developments opened to it by the new forms of wounds inflicted by new forms of warfare, especially gun-shot wounds; a radical cure of hernia by the use of sutures and ligatures was worked out, strictures of the urethra were treated, and plastic operations were once more done with the skill that the Hindus had attained, fifteen centuries earlier, but had been forgotten. Ambrose Pare is by far the most prominent figure of the 16th century in the history of surgery.

A knowledge of the body, anatomy, is necessary for good surgery, and up to this time it was imperfect. Andreas Vesalius became interested in dissecting and became noted for his work, but he was hampered by the dictum of the church, the theologic idea of the sanctity of the human body and its resurrection, even though the Catholic Inquisition, headed by Torquemada, burned perhaps 200,000 heretics in the domain of Spain; in the States of Germany, and with the express approval of the pious Luther, Dr. White says that 100,000 were burned as witches; the priestly authorities commanded Vasalius to quit dissecting and to burn his books, which he did in a fit of anger; but he had left the magnificent work, "De Fabrici Humani Corporis", with its beautiful and accurate drawings intact; later, his pupil, Gabrielle Fallopio, gave the world a more complete work, his "Observationes Anatomicae", in 1561, and established the modern study of anatomy on a solid and enduring base.

The 17th century was distinguished rather for rapid progress of the knowledge of anatomy and physiology than for a high standard of surgery; the treatment of gunshot wounds as taught by Pare was confirmed, and flap amputations, forgotten since the days of Heliodorus, 1500 years earlier, were again used. William Harvey, in 1640, demonstrated the circulation of the blood through the heart, arteries, capillaries and veins, and made another landmark of progress. Von Hilden introduced the tourniquet, and Lowdham and Wiseman, of England, further per-

fected surgical technique. Operations for strangulated hernia, for stone in the bladder, the transfusion of blood, and the first real cataract operations were done, and Wiseman's "Seven Chirurgical Treatises", published in 1676, were remarkable for originality, daring and sound principles, and he was regarded as the father of English surgery; in the 18th century, surgical practice and knowledge were established on a broader and more scientific basis; the Academy of Surgery was organized in Paris, in 1731, and among its members were Petit, Chopart, and Desault; in London and Edinburgh, dissecting rooms and anatomical museums were established, of which the most noted was that of Dr. William Hunter, and his more famous brother, John Hunter, one of the most notable men of this century; the practice of surgery began to be separated from that of the barbers, but we still have the reminder of that time in the fact that in England at the present time, a surgeon has no professional title, but is known as "Mr. Blank"; at this period, in Germany, it fell to the lot of the regimental surgeons of the army to shave the officers, but under the leadership of Von Holtzendorf in Berlin, and the Joseph Academy in Vienna, the Germans made rapid progress, and were soon pre-eminent; the first teachnig of surgery in the United States was by Dr. Shippen of Philadelphia, near the end of the century.

A great part of the advances of the 18th century was in surgical pathology; Petit's observation of the formation of thrombi, Hunter's account of the process of wound-healing, Benjamin Bell's classification of ulcers, Duhamel's description of the repair of bones, Pott's account of spinal curvature and its cause, Cheselden, of nerve tumors, and his operation for lithotomy and cataract, Hunter's operation for aneurysm, Pott's treatment of fractures, Gimbernat's for hernia, Chopart's foot amputation were some of the most remarkable things accomplished in this century.

Two things occurred about the middle of the 19th century that put surgery on a secure basis ,and promoted unlimited development; Pasteur, working with the microscope, and animal broths, found that in the high altitude of the Alps, the pure air had no germs, and that the broths kept indefinitely, and that the same result followed heating and sealing his tubes; Joseph Lister read of Pasteur's work, and decided that an antiseptic would do the same thing, and on August 12, 1865, operated on a case of compound fracture, with complete success. The idea spread rapidly and other antiseptics as well as heat was used and operations became safe from the infections, gangrene, and suppuration and high mortality of former days. Morton, a Boston dentist found that sulphuric ether would induce sleep and insensibility to pain, and on October 16, 1846, at the Massachusetts General Hospital of Boston, in a room still preserved as it was that day, he gave ether, and Warren operated before a class of students and doctors and is reputed to have said, "Gentlemen, this is no humbug"; there is a well known picture of Morton standing by the side of an idealized woman, and the astonished Warren beside him, that will induce a feeling of reverence in any thoughtful man and Oliver Wendell Holmes named it "Anaesthesia", and Weir Mitchell, "The Death of Pain"; in 1847, Simpson, at Edinburgh, used chloroform, and these, with the work of Pasteur and Lister gave to the world safe and painless surgery, and deserve the lasting gratitude of all mankind for all time; and surgery progressed further and wider in the last quarter of the 19th century than in all the previous time that man has been on the earth and the 20th century has seen a perfection of detail and successes undreamed of, even twenty-five years ago, and my most sincere wish is that I could live a thousand years, and see the unfolding of human knowledge and accomplishment, not only in surgery, but in all fields of human endeavor, for the race is only in its infancy and things will be discovered that will revolutionize the life of man, when the vast energy of striving after the imaginary hereafter will be devoted to humanity, and the here and now, and the elimination of disease, poverty, ignorance and superstition and man becomes what his capacities indicate, a rational, reasonable being, capable of governing himself with some degree of fairness and in the sense of the old Greeks, virtue and equanimity.

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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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EDITORIAL

THE LAST CALL.

Elsewhere in this issue will be found complete program of the Tulsa meeting, May 17, 18, 19. Some additions may be made to this program, and if so, they will appear in the hand books issued for the use of those attending the meeting.

We urge the members to carefully read this program in order to better select which section or sections they deem best for their particular needs. It is regretable that most of these sections cannot be attended by each and every member, as they certainly offer subjects with which the great majority of our members are deeply concerned. Highly technical and scientific subjects are undoubtedly of great worth to the specialist, specializing in such subjects and to the student peculiarly interested in them, but our membership derives more benefit from practical papers, papers covering the problems with which they may be confronted at any time. As our meeting is now divided into five sections it is manifestly impossible for the attendants to attend more than parts of one, at the most two sections.

We believe the Tulsa meeting will be found unusually well worth while. We believe that under our system the various phases have been divided as equitably as possible, considering the rights and demands of each of the interests concerned. We urge our members to read carefully and follow the suggestions offered as to preparation of papers in the preamble of the program. Compliance with these suggestions is complying with the proper system, otherwise confusion certainly results.

The first thing a member should do upon arriving in Tulsa and finding his hotel, is to visit the registration booth on the 2nd floor of the Akdar Temple, register, receive badge, program and information as to clinics and other local activities.

NATIONAL HOSPITAL DAY MAY 12TH

This is a reminder that May 12th is National Hospital Day throughout the country. This day, selected in memory of Florence Nightingale, should yearly become more important and more sacred to hospitals, hospital staffs and managements, physicians and nurses throughout the land. Observance of this day will create a greater pride in our hospital system and call attention of a neglectful public to the need of the hospitals and will impress upon the public the fact that the hospitals of the country are rapidly becoming indispensable necessities of our civilization.

Editorial Notes—Personal and General

DR. A. C. HIRSHFIELD gave a talk on "Pelvic Infections" before a joint meeting of the Hughes-Seminole County Societies at Wewoka on March 15th.

DR. WM. LANGSFORD of 323 East 11th at Oklahoma City, spent the month of April at Claremore recuperating from a recent illness.

MAYES COUNTY MEDICAL SOCIETY met April 4th, at the office of the Secretary, Dr. Ivadell Rogers. Papers were read by Drs. Hillis and Whitaker of Pryor.

DR. and MRS. C. E. NORTHCUTT, Ponca City, have left for Baltimore, Cleveland and points in New York, where Dr. Northcutt is to take postgraduate work in surgery in different clinics.

DR. GEORGE R. TABOR, 324 American National Bank Bldg., Oklahoma City, recently read a paper before the Oklahoma County Medical Society on "Medical Ethics", copies of which may be had for the asking.

DR. E. E. LEHMER, Oklahoma City, left on April 1st to spend a month in clinical work at Massachusetts General Hospital and Harvard University Medical School, after which she plans an ocean trip through the Gulf of Mexico before returning to her practice.

A SYMPOSIUM on "The Problem of Advanced Tuberculosis" constituted the program of the Grady County Medical Society April 6th, 1928; Drs. P. M. McNeill, A. D. Young, L. J. Moorman and Horace Reed, all of Oklahoma City. The program was preceded by a dinner at the Early Hotel.

MALTBIE CHEMICAL Company, Newark, N. J., have contributed a grant for research fellowship for the coming year to the Department of Chemistry of Princeton University. The research work will cover certain phases of chemistry of creosote and creosote compounds.

WOODS COUNTY MEDICAL SOCIETY held their regular meeting in Alva, March 26th. with a luncheon served at the home of Dr. O. E. Templin. Dean LeRoy Long, of the University of Oklahoma Medical School at Oklahoma City, addressed the meeting.

A JOINT MEETING of the Okmulgee and Okfuskee County Medical Societies was held in Okmulgee, May 9th, with a large number of physicians attending from Sapulpa and Tulsa. Dr. Clinton K. Smith, Kansas City, was the principal speaker. His subject was "Pyelitis in Children."

OTTAWA COUNTY MEDICAL Society met April 11th at their outing club on the Cowskin River. About 35 physicians were present. After an out-door dinner, Dr. G. L. Herrington of Kansas City, delivered an address on "Psycology and Medicine." The out of town visitors were Drs. Edwin J. Rose, in charge of the U. S. Veterans Hospital, Muskogee; J. Hutchings White and Claude Thompson, Muskogee.

CREEK COUNTY MEDICAL SOCIETY met April 5th, with a number of doctors from Tulsa as guests, and Dr. Carl Puckett of Oklahoma City. Dr. C. T. Hendershot, Councilor, Tulsa, delivered a talk on "Fraternity of Medicine." 'The Reliable Symptom of Heart Disease" was shown by Dr. Wm. J. Trainor, Tulsa, through the use of lantern slides. Use of the X-Ray and some of the common skin diseases was demonstrated by Dr. W. A. Showman, Tulsa.

OKMULGEE and OKFUSKEE MEDICAL Societies held their joint meeting at the Legion Hut, Okemah, Monday, April 9th. The dinner, served at 6:30 P.M. was furnished by the American Legion Auxiliary. The following program was given: "Some Remarks About Goitre," Dr. LeRoy Long, Oklahoma City; "Gastric Ulcer," Dr. A. W. White, Oklahoma City; "Address," Dr. L. S. Willour, Councilor, McAlester.

DRS. A. J. WEEDN, D. LONG, B. H. BURNETT, L. L. SMITH and J. B. CARMICHAEL, all of Duncan, were guests of the Grady County Medical Society, April 6, at a dinner at the Early Hotel, Chickasha. Following the dinner, the society adjourned to the Chamber of Commerce where a symposium on Tuberculosis was given by a group of Oklahoma City doctors. The lectures were illustrated with lantern slides.

AMERICAN ASSOCIATION for the Study of Goiter will meet in Denver June 18, 19, and 20th. Among the distinguished guests will be Dr. Breitner of Vienna and Dr. Albert Kocher of Switzerland. Representatives interested in goiter work from many clinics in the United States and Canada will be present. This is the 5th year of meeting of this Society and as the problem of goiter is constantly increasing it is expected that the meeting will be very largely attended.

TRIPLETS WERE BORN to Mr. and Mrs. Mack Watson, Calhoun, Oklahoma, April 12th, 1928. All three females, weighing 6, 5, and 5 lbs. respectively. First baby born was head presentation, other two were breech presentation. There were two placentas, two cords attached to one, and one cord to the other placenta. Mother is 29 years of age, and has three other children, one boy 7 years of age, one boy 4 years of age, and a girl 23 months of age. Mother and all three babies are doing good, reports Dr. Harrell Hardy of Poteau.

STEPHENS COUNTY MEDICAL SOCIETY held an interesting meeting, March 26th, when the members of the Grady County Medical Society were their guests. Dr. A. B. Leeds, Chickasha, reported an interesting case of chronic constipation. Dr. A. B. Chase, Oklahoma City, lectured on some of the diseases of the heart. Dr. Roy Emanuel, Chickasha, read a paper on internal injuries of the head. Dr. H. Coulter Todd, Oklahoma City, made an interesting talk on how infections of the anthrums may be produced. Dr. Rebecca Mason, Chickasha, gave a general talk and Dr. W. H. Livermore, Chickasha, made a talk on Good Fellowship among doctors.

THE MUSKOGEE COUNTY MEDICAL Society were the guests of the Staff of the U. S. Veteran's Hospital, Muskogee, April 9th. Drs. A. L. Stocks, H. L. Scott, and H. T. Ballentine were elected delegates. Dr. F. J. Wilkiemeyer presented two cases of "Pernicious Anemia" improved by Liver Extract. Dr. C. E. Clay presented two cases of "Aortic Aneurysm" and one of "Auricular Fibrillation." Dr. E. Levi presented several cases of "Tuberculosis," stating the requirements for diagnosis and what constituted activity and arrest. Dr. Glenn Mullins presented a case of "Miltral Stenosis." Dr. A. L. Mobly presented a case report of "Osteomyelitis." Dr. C. A. Thompson presented several cases under the title of "Acute Abdominal Cases, too long acute."

THE GARABEDIAN CLINIC FOR CHILDREN announces the acquisition of Dr. Harry J. McGuire, recently from Chicago. Dr. McGuire will be in charge of and limit his work to gynecology and obstetrics.

DR. HARPER WRIGHT, vice-president, State Board of Medical Examiners. visited clinics in Chicago, Buffalo, Toronto and New York, spending six weeks in the clinics in New York and Brooklyn in March and April.

STEPHENS COUNTY MEDICAL SOCIETY had an interesting and instructive meeting in Duncan April 24th. Drs. LeRoy Long, Sr., LeRoy Long, Jr., Lea A. Riely, H. H. Turner and Stone were present from Oklahoma City. Dr. LeRoy Long, Sr., reported an operation on gall bladder drainage and then talked on diseases of the thyroid gland. Dr. Riely gave a talk on pernicious anemia.

THE DOUBLE TEST OF PITUITRIN

The work of Kamm and his associates in demonstrating the existence of two active principles in the posterior lobe of the pituitary body, one of which acts on uterine tissue and the other on blood pressure, has aroused great interest in scientific circles, and especially among physicians. The Journal of the A. M. A. gave it leading editorial space in the Feb. 25 issue, and subsequent work in the Thorndike Memorial Laboratory has confirmed the opinion of the Parke-Davis technicians that the blood pressure raising hormone accounts for the antidiuretic or antipolyuric effect of Pituitrin (New England Journal of Medicine, March 15, 1928). It is therefore extremely improbable that the posterior pituitary lobe contains more than two active principles.

But it does contain two. And these two are normally present in certain proportions; so it would seem that Parke, Davis & Co., who gave the profession the first pituitary extract and named it Pituitrin, have been fully justified in applying two tests—oxytocic and pressor—to their product for the past ten years. Pituitary extract is of service in other than obstetric cases, and its value depends in part upon its ability to increase the tone of the arterial system.

Parke, Davis & Co. have just issued a booklet on Pituitrin, which will of course be sent promptly to inquiring physicians.

DOCTOR S. AUGUSTUS RICE

Dr. S. A. Rice, practitioner of Velma, passed away at his home February 23, 1928, advanced age causing his passing. Funeral services were conducted by Rev. Davis of the Christian church, and interment was in the Alma cemetery.

Dr. Rice was born in Arkansas October 8, 1856. He had been in active practice since 1890. Coming to Texas at an early day he practiced at Lebanon, Justin and Salina. Since 1898 he had been a resident of Indian Territory and the the State of Oklahoma. Dr. Rice had been a resident of Stephens county for the past 12 years. He first came to Alma, and removed to Duncan in 1923.

The deceased is survived by his wife and one son.

Report of Examination for Licenses to Practice Medicine

Report of Oklahoma Board of Medical Examiners, held in Oklahoma City, March 13, and 14, 1928; number of subjects examined in, 12; total number of questions, 120; percentage required to pass, 75; total number examiners, held in Oklahoma City, March 13 regular school of practice, and licensed by written examination.

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Home Address or Previous Location
Long, Wendell M.	1899	Caddo, Okla.	Harvard	1926	Oklahoma City
Batchelor, John J.	1895	Judea, Scotland	Yale	1924	Oklahoma City
Woodard, Julius Harold	1900	Lancaster, Mo.	Washington Univ.	1925	Picher, Okla.
Adams, Edward	1874	Mayfield, Ky.	Ky. School Med.	1904	Paducah, Ky.
Baker, Forrest Pitt	1889	Hot Springs, Ark.	Univer. of Arkansas	1912	Talihina, Okla.
Flack, Frank L.	1888	Longton, Kan.	Univ. of Kansas	1912	Coffeyville, Kan.
Grant, Lucile Ruffe	1895	AnSable, Mich.	Univ. of Michigan	1923	Sand Springs, Okla.
Britt, Henry Augusta	1879	Mississippi	Col. P&S Little Rock	1911	Seminole, Okla.
Grimes, John Philemon	1900	Dawson, Ga.	Emory Univ.	1924	Wewoka, Okla.
Hunter, William Lester	1872	Greenville, W. Va.	College of Virginia	1900	Seminole, Okla.
McGuire, Harry J.	1900	Westport, Wis.	Rush Med. College	1926	Chicago, Ill.
Ogg, Francis Willard	1894	Douglass, Kan.	Univ. of Kansas.	1920	Osborne, Kan.
Richardson, Robert W.	1871	Okalona, Ark.	Under-graduate		Comanche, Okla.
Dunlap, W. S. (col.)	1874	Bellefontaine, Miss.	Meharry Med.	1902	Wewoka, Okla.
Crockett, Chas. S.	1878	Ozark, Ark.			Lincoln, Ark.
Patterson, James L.	1884	Dekalb, Mo.	Ensworth Med.	1906	Duncan, Okla.
Pope, H. P.	1882	Texas			Asher, Okla.
Wilson, Clarence Erroll	1887	Marcus, Iowa	Univ. of Iowa	1910	Boise City, Okla.
Chesnut, Wylie G.	1904	Salem, Ark.	Univ. of Ark.	1927	Oklahoma City
Foster, Edward Wendell	1894	Mt. Vernon, Mo.	Harvard Med.	1924	Tulsa, Okla.
McCarthy, Alphonsus M.		Greeley, Neb.	Creighton Med.	1927	Oklahoma City
Moore, Maurice B. (col.)	1901	Camden, N. J.	Howard Univ. Med.	1927	Oklahoma City
Ringrose, Ranson Francis	1900	Chicago, Ill.	Univ. Iowa Med.	1927	Oklahoma City
Raff, David	1902	Montreal, Can.	McGill Uv. Montreal	1927	Oklahoma City
Raff, Joseph Samuel	1902	Montreal, Can.	McGill Uv. Montreal	1927	Oklahoma City
Snow, James Byron	1903	Quitman, Texas.	Univ. of Texas Med	1926	Oklahoma City
Webster, William Welsh	1903	Wray, Colo.	Univ of Neb. Med.	1928	Tulsa, Okla.
Underwood, David J., Jr.	1898		Northwestern	1926	Tulsa, Okla.
Auwers, Frederick Jacob	1892	Kalamazoo, Mich.	Hahneman Med. Col.	1915	Blackwell, Okla.

PROGRAM

THIRTY-SIXTH ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, TULSA, MAY 17-18-19, 1928

Place—Adkar Temple, 4th and Denver.

Telephones—3-0342 and 2-8035.

Registration — Physicians, resident of Oklahoma, must be in good standing for 1928, that is, they must have issued to them certificate of membership for this year. Registration will be made from a roster of members at the Registration desks in the Exhibit Hall, second floor Akdar Temple, which roster is made up from the 1928 remittance sheets as filed by county secretaries. Members not holding certificates should at once consult their county secretaries and see that their record is cleared.

Delegates—Should present their credentials to the Credentials Committee, as soon as possible after arrival in order to facilitate the meeting of the House of Delegates.

Papers—Are the sole property of this Association, and upon reading should be taken up by the Section Officer; under no circumstances should these papers be carried away. Much loss of time as well as much unnecessary correspondence will be prevented if the papers are prepared exactly in the following manner: Title, author, name and address, section in which read and date of reading. Before final publication, printer's proof will be sent each author for correction. All papers should be typewritten, double spaced, and prepared in duplicate. Those designated to open discussion should have a copy of such paper or synopsis of its contents.

The Council—Will meet at 8:00 P. M. May 16, Hotel Mayo. All other meetings will be on call of the President. All matters pertaining to business of the Association should be presented to the Council.

The House of Delegates—Will meet in Akdar Temple, at 10:00 A. M., May 17. Delegates must have their credentials in the hands of the Credentials Committee before being seated.

House of Delegates—Will vote upon the proposed Constitution and By-Laws. The House of Delegates will meet at 8:30 A. M., May 18, Akdar Temple. The first order of business will be the annual election of officers and the completion of such business as may come before it.

The General Meeting—Will be held at 8:00 P. M., May 17, Akdar Temple Theatre.

Scientific Sections—All Scientific Sections, except Eye, Ear, Nose and Throat, which will meet 9:00 A. M., May 18, will begin their deliberations at 2:00 P. M., May 17, and continue their work, except for recessing, until the programs are completed. Papers to be read will be called in the order they appear upon the program, and if not offered will drop to the bottom, except the Section may vote to alter the rule. Section officers should be elected at the end of the first meeting rather than at the end of the Section work.

Clinics—Will be held on each morning of the meeting, schedules will be obtainable at the Registration booth.

Moving Picture Films—Interesting moving picture films on "The Diagnosis and Treatment of Infections of the Hand" will be shown by the Extension Department of the State University. The time of these will be announced in the various sections.

Women's Auxiliary—Will meet May 18, 10:00 A. M., in Assembly Room, Medical Arts Building.

Golf—Doctors' tournament will be played May 17th. Those wishing to enter this tournament will communicate in advance with Dr. J. C. Peden, 611 Medical Arts Building., Tulsa, giving their club handicap. Ground privileges are extended to all visiting physicians by the Tulsa Country, Oakhurst Country and Indian Hills Country clubs.

The President's Reception and Dance—Will be held 8:30 P. M., May 18, at the Hotel Mayo.

Luncheons, Dinners—The Tulsa Academy of Opthalmology and Oto-Laryngology will give a luncheon at the Tulsa Club, Friday noon, May 18, for the visiting Eye, Ear, Nose and Throat men.

Medical Reserve Officers Banquet—Will be held at 6:30 P. M., May 18, Hotel Mayo. Any member attending the Session is eligible. Tickets for this function will be obtainable by communicating with Dr. Paul R. Brown, Medical Arts Building, Tulsa, and should be arranged for well in advance.

A luncheon for all members of Phi-Chi medical fraternity will be held on Friday, May 18th, at 1 o'clock, Mayo Hotel. Get your reservations at Registration desk, Dr. C. D. F. O'Hern, Chairman.

Hotels—Hotel rates in Tulsa for State Meeting: Hotel Mayo, general headquarters, single, $3.50 to $7.00, double $5.00 to $10.00; Hotel Tulsa, single, $3.00 to $5.00 double, $4.00 to $7.00; Hotel Ketchum, $2.50 to $7.00; Hotel Wells, $2.50 to $5.00; Hotel Densmore, $1.50 to $4.00. Reservations should be made at once. Address: Dr. C. T. Hendershot, Chairman Hotels and Registration, 507 Medical Arts Building, Tulsa.

The papers of Drs. W. D. Haggard, Surgical Section; Wm. F. Braasch and John R. Caulk, Urological Section, will be read before a joint meeting of the sections on Surgery, Gynecology and the section on Urology and Syphilology. The time will be announced by sections concerned.

Tulsa County Medical Society, through its President, Dr. Wm. J. Trainor, has named the following committee for execution of the meeting:

General Chairman—Dr Ralph V. Smith.

Committee on Exhibits—Dr. Chas. D. Haralson.

Committee on Finance—Dr. Roy Dunlap.

Committee on Entertainment—Dr. Fred Y. Cronk.

Committee—Hotel and Badges—Dr. C. T. Hendershot.

Committee on Clinics—Dr. H. D. Murdock.

Reserve Officers Banquet—Drs. Paul R. Brown, P. P. Nesbitt, Ralph V. Smith.

Women's Auxiliary—Mesdames H. D. Murdock, Fred Y. Cronk, W. J. Trainor and C. T. Hendershot.

PROGRAM, GENERAL MEETING
Akdar Temple

May 17, 8:00 P. M.

Dr. Ralph V. Smith, General Chairman, Presiding

Music.

Invocation—REV. GEO. O. NICHOLS, D.D., Pastor College Presbyterian Church.

Address of Welcome—DR. JOHN D. FINLAYSON, D.D., President, University of Tulsa.

Response—DR. ARTHUR W. WHITE, Oklahoma City.

Music.

Introduction of President — DR. ELLIS LAMB, Clinton, by DR. J. S. FULTON, Atoka, Retiring President.

President's Address.

Music.

Introduction of Visiting Guests—DR. WM. D. HAGGARD, Nashville, ex-President of the American Medical Association; DR. CLIFTON F. McCLINTIC, Detroit; DR. W. R. BATHURST, Little Rock; DR. RICHARD BOLT, Berkeley, Calif.; DR. WM. F. BRAASCH, Rochester; DR. JOHN R. CAULK, St. Louis; COL. H. H. RUTHERFORD, U. S. A., San Antonio; DR. JOHN O. McREYNOLDS, Dallas, Texas.

Music.

EYE, EAR, NOSE AND THROAT
9:00 A. M., May 18th

DR. A. C. McFARLING, Chairman, Shawnee

DR. F. V. VIEREGG, Secretary, Oklahoma City.

Chairman's Address.

"Some Observations on Chronic Otorrhea" DR. A. C. McFARLING, Chairman, Shawnee.

"Foreign Body in the Air Passages"—DR. J. C. BRASWELL, Tulsa.
Discussed by DR. A. L. GUTHRIE, Oklahoma City.

"My Experience With Laryngitis in the Tuberculous" — DR. FRANK RAY VIEREGG, Clinton.
Discussed by DR. H. P. PRICE, Tulsa.

"Aseptic Thrombosis of the Cavernous Sinus"—DR. H. C. TODD, Oklahoma City.
Discussed by DR. J. C. McDONALD, Oklahoma City.

"Foreign Bodies in the Vitreous"—DR. E. S. FERGUSON, Oklahoma City.
Discussed by DR. M. K. THOMPSON, Muskogee.

"Focal Infection Resulting From Para Nasal Sinusitis" — DR. A. S. PIPER, Enid.
Discussed by DR. D. D. McHENRY, Oklahoma City.

"Evisceration With Gold Ball Implantation"—DR. W. A. HUBER, Tulsa.
Discussed by DR. R. W. DUNLAP, Tulsa.

"Treatment of the Abnormalities of the Ocular Muscles"—DR. C. B. BARKER, Guthrie.
Discussed by DR. M. K. THOMPSON, Muskogee.

"Chronic Purulent Otitis Media; Combined Treatment"—DR. I. D. WALKER, Blackwell.
Discussed by DR. C. B. BARKER, Guthrie

"Trachoma—Summary of My Experience in the Medical Treatment and Clinical Cure of Trachoma Before Cicatricial Stage"—DR MARTIN RUST, Pawhuska.
Discussed by DR. A. W. ROTH, Tulsa.

"Eye Cases From Oral Sepsis"—DR. J. R. WALKER, Enid.
Discussed by DR. A. S. PIPER, Enid.

"Treatment of Purulent Meningitis"—DR. W. E. DIXON, Oklahoma City.

SURGERY AND GYNECOLOGY
8:30 A. M., MAY 17

DR. L. M. SACKETT, Chairman, Oklahoma City.

DR. SAM H. RITZHAUPT, Secretary, Guthrie.

"The Acute Abdomen"—DR. V. C. TISDAL, Elk City.
Discussed by DR. McLAIN ROGERS, Clinton.

"Surgical Treatment of Gonorrheal Salpingitis"—DR. F. A. HUDSON, Enid.
Discussed by DR. JOHN F. KUHN, Oklahoma City.

"The Deformed Hand and Its Reconstruction"—DR. CURT VON WEDEL, Oklahoma City.
Discussed by DR. FRED GLASS, Tulsa.

"Congenital Pyloric Stenosis With Special Reference to Surgical Treatment"—DR. B. F. COLLINS, Claremore.
Discussed by DR. R. M. CHURCH, Stillwater and DR. A. D. JENNINGS, Chelsea.

"The Treatment of General Peritonitis"—DR. J. HUTCHINGS WHITE, Muskogee.
Discussed by DR. I. B. OLDHAM, Muskogee and DR. C. D. O'HERN, Tulsa.

"Malignant Condition of the Female Pelvis"—DR. L. A. HAHN, Guthrie.
Discussed by DR. L. J. STARRY, Oklahoma City.

"Pelvic Varicocele in the Female With Symptoms and Treatment"—DR. A. W. PIGFORD, Tulsa.
Discussed by DR. E. E. RICE, Shawnee.

"Cancer of the Rectum-Radical and Palliative Operations" — DR. RAYMOND L. MURDOCK, Oklahoma City.
Discussed by DR. L. S. WILLOUR, McAlester.

"Gall Bladder Visualization" — DR. PAT FITE, Muskogee.
Discussed by DRS. C. A. THOMPSON and S. D. NEELY, Muskogee.

"Some Anemias Cured by Splenectomy"—DR. W. D. HAGGARD, Nashville, Tenn.
Discussed by DRS. LEROY LONG and LEA RIELEY, Oklahoma City.

"The Clinical Aspects of the Transport Mechanism of the Alimentary Tract"—DR. C. F. McCLINTIC, Detroit, Mich.

"Some Points in the Use of Local Anesthesia"—DR. A. S. RISSER, Blackwell.
Discused by DR. R. V. SMITH, Tulsa.

"Jejunostomy — Indications and Technique" — DR. A. L. BLESH, Oklahoma City.
Discussed by DR. T. M. ADERHOLD, El Reno.

"Some Phases of the Treatment of Head Injuries"—DR. J. F. PARK, Tulsa.
Discussed by DR. LEROY LONG, Oklahoma City.

"Intramural Shortening of the Round Ligaments"—DR. McLAIN ROGERS, Clinton.
Discussed by DR. R. M. HOWARD, Oklahoma City.

"A Patient Or A Case"—DR. F. S. CLINTON, Tulsa.
Discussed by DR. HORACE REED, Oklahoma City.

OBSTETRICS AND PEDIATRICS

DR. GEO. R. OSBORN, Chairman, Tulsa.
DR. CLARK H. HALL, Secretary, Oklahoma City.

Chairman's Address—*"Standardization in Obstetrical Practice"*—DR. GEO. R. OSBORN, Tulsa.

"Toxemias of Pregnancy" — DR. J. G. SMITH, Bartlesville.
Discussion opened by DR. W. A. DEAN, Tulsa, and continued by DR. A. C. HIRSHFIELD, Oklahoma City.

"Obstetrical Anesthesia and Analgesia"—DR. M. E. SIPPEL, Tulsa.
Discussion opened by DR. FLOYD J. BOLEND, Oklahoma City, and continued by DR. BERTHA MARGOLIN, Tulsa.

"Lactation and Puerperal Care of Breasts"—DR. D. D. ROBERTS, Enid.
Discussion opened by DR. R. M. ANDERSON, Shawnee, and continued by DR. T. C. LOWRY, Oklahoma City.

"Hemorrhages of Pregnancy"—DR. E. W. FOSTER, Tulsa.
Discussion opened by DR. E. P. ALLEN, Oklahoma City, and continued by DR. D. M. McDONALD, Tulsa.

"Recurrent Abortion"—DR. M. B. GLISMANN, Okmulgee.
Discussion opened by DR. W. W. WELLS Oklahoma City, and continued by DR. DIVONIS WORTEN, Pawhuska.

"Some Practical Considerations of the Common Skin Conditions of Children"—DR. WINFRED A. SHOWMAN, Tulsa.
Discussion opened by DR. HUGH EVANS, Tulsa, and continued by DR. A. L. SOLOMAN, Oklahoma City.

"The Future of Obstetrics and Pediatrics in Oklahoma"—DR. LUCILE BLACHLY, *Bureau of Maternity and Infancy.*
Discussion opened by DR. C. V. RICE, Muskogee, and continued by DR. K. C. REECE, Tulsa, and DR. G. GARABEDIAN, Tulsa.

"The Management of Laryngeal Diphtheria"—DR. T. G. WAILS, Oklahoma City.
Discussion opened by DR. H. C. GRAHAM, Tulsa, and continued by DR. N. J. DIEFFENBACH, Tulsa.

"The Backward Child" (illustrated with lantern slides)—DR. HENRY H. TURNER, Oklahoma City.
Discussion opened by DR. C. E. WHITE, Muskogee, and continued by DR. M. J. SEARLE, Tulsa.

"Preventative Obstetrics and Pediatrics"—DR. RICHARD A. BOLT, Professor of Pediatrics, University of California, Berkeley.

"Acute Upper Respiratory Conditions in Childhood"—DR. W. M. TAYLOR, Oklahoma City.
Discussion opened by DR. C. E. BRADLEY, Tulsa, and continued by DR. CLARK H. HALL, Oklahoma City.

"The Intraperitoneal Use of Citrated Blood in the Treatment of Bronchopneumonia"—DR. C. W. ARRENDELL, Ponca City.
Discussion opened by DR. CARROL M. POUNDERS, Oklahoma City, and continued by DR. F. L. UNDERWOOD, Tulsa, and DR. I. C. WOLFE, Muskogee.

UROLOGY AND SYPHILOLOGY

ELIJAH S. SULLIVAN, *Chairman*, Oklahoma City.

BASIL A. HAYES, Secretary, Oklahoma City.

"The Relation of Urology to the Surgeon and General Practitioner" — DR. ELIJAH S. SULLIVAN, Chairman, Oklahoma City.

"Posterior Urethra" — DR. O. R. GREGG, Pawhuska.
Discussed by DR. ELLIS MOORE, Oklahoma City.

"Symposium—Tuberculosis of the Kidney"
(*Urologist*)—DR. C. B. TAYLOR, Oklahoma City.
(*Internist*)—DR. PHIL McNEIL, Oklahoma City.
(*Surgeon*)—DR. LE ROY LONG, SR., Oklahoma City.
Discussion led by DR. E. L. COENHOUR, Tulsa.

"The Cautery Punch Operation" — DR. JOHN R. CAULK, St. Louis, Mo.
Discussion led by DR. FLOYD WARTERFIELD, Muskogee.

"Elusive Ulcer of the Bladder"—DR. JOHN Z. MRAZ, Oklahoma City.
Discussed by DR. HENRY S. BROWNE, Tulsa.

"Leukoplakia of the Trigone" — DR. HUBERT CALLAHAN, Tulsa.
Discussed by DR. J. H. HAYS, Enid.

"The Diagnosis of Ureteral Stricture"—DR. WM. F. BRAASCH, Mayo Foundation, Rochester, Minn.
Discussed by DR. W. J. WALLACE, Oklahoma City.

"The Penile Sore" — DR. GEO. BORECKY, Oklahoma City.
Discussed by DR. REX BOLEND, Oklahoma City.

"Acute Gonorrhea in the Female"—DR. J. H. HAYS, Enid.
Discussed by DR. FRANK J. BAUM, McAlester.

"Urologic Problems of the General Practitioner"—DR. S DE PORTE, Ardmore.
Discussed by DR. JOHN Z. MRAZ, Oklahoma City.

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SECTION ON GENERAL MEDICINE, NEUROLOGY, PATHOLOGY AND BACTERIOLOGY

DR. W. S. MASON, Chairman, Claremore.

DR. E. K. WITCHER, Secretary, Tulsa.

Chairman's Address—*"The History of the Code of Medical Ethics"* — W. S. MASON, B.S., M.D., Claremore.

Symposium-Pulmonary Tuberculosis—
Diagnosis—DR. E. E. DARNELL, Clinton.
Discussed by DR. W. H. MYTINGER, Sulphur.
Prognosis—DR. C. E. BATES, Oklahoma City.
Discussed by DR. EMANUEL LEVY, Muskogee.
Artificial Pneumothorax and Thoracoplasty—DR. L. J. MOORMAN, Oklahoma City.
Discussed by DR. HORACE T. PRICE, Tulsa.
Clinical Pathology — DR. H. G. JETER, Oklahoma City.
Discussed by DR. RALPH E. MYERS, Oklahoma City.

"The Nature and Source of Bacteriophage and It's Relation to Immunity" — DR. GAYFREE ELLISON, Norman.

"Diseases Other Than Hay Fever and Asthma Due to Specific Sensitivity" —DR. RAY M. BALYEAT, Oklahoma City
Discussed by DR. JAMES STEVENSON, Tulsa.

"The Study of A Series of Gastro-intestinal Cases With Particular Reference As to Causes and Final Diagnosis"—DR. C. J. FISHMAN, Oklahoma City.
Discussed by DR. A. W. WHITE, Oklahoma City.

"The Differential Diagnosis Between Angina Pectoris and Coronary Infarct" DR. M. A. MORTENSEN, Battle Creek, Michigan.
Discussed by DR. W. J. TRAINOR, Tulsa. and DR. A. B. CHASE, Oklahoma City.

"Criminal Responsibility of the Mentally Ill." — DR. M. S. GREGORY, Oklahoma City.
Discussed by DR. A. L. STOCKS, Muskogee.

"Industrial Psychoneurosis" — DR. A. D. YOUNG, Oklahoma City.
Discussed by DR. CHAS. RAYBURN, Norman.

"Tuluremia—A Report of Three Cases"—
(a) DR. L. R. WILHITE, Perkins.
(b) DR. R. D. MORRIS, Stuart.

"Cutaneous Aspects of Systemic Disease" DR. JAMES STEVENSON, Tulsa.
Discussed by DR. C. P. BONDURANT, Oklahoma City.

"Malta Fever—A Report of Three Cases" DR. SAMUEL GOODMAN and DR. D. O. SMITH, Tulsa.
Discussed by DR. T. H. McCARLEY, McAlester.

"The Possibilities in Rural Practice"—DR. R. R. SIGLER, Braman.

"Visualization of Gall Bladder and Diagnosis of Gall Bladder Conditions From an X-Ray and Laboratory Point of View"—DR. MORRIS LEVINE, Tulsa.
Discussed by DR. J. E. HEATLEY, Oklahoma City.

"The Necessity for Complete Routine Examination"—DR. W. J. BRYAN, Tulsa.
Discussed by DR. J. C. PEDEN, Tulsa.

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PROGRAM OF WOMEN'S AUXILIARY

Session, Friday, May 18, 10 A. M. 1928, Assembly Room, Medical Arts Building.

MRS. EDWARD P. ALLEN, President, Presiding.

1. Song—"America."
2. Invocation.
3. Welcome Address—Mrs. H. D. Murdock, Tulsa.
4. Response—Mrs. J. S. Fulton, Atoka.
5. President's Address—Mrs. Edward P. Allen, Oklahoma City.

6. Reports of State Officers—
Secretary, Mrs. A. S. Risser, Blackwell; Treasurer, Mrs. C. A. Thompson, Muskogee.
7. Reports of County Delegates.
8. Election of Officers and Delegates to the American Medical Association Auxiliary, Minneapolis, Minnesota, June 11 to 15, 1928.

Luncheon

1. Round Table — *"Experiences of the Doctor's Wife."*—Leader, Mrs. W. K. West, Oklahoma City.
2. Report of Delegates to American Medical Association Auxiliary, Washington, D. C., 1927—Mrs. J. M. Byrum, Shawnee; Mrs. M. M. Roland, Oklahoma City.
3. Reading—*"The Doctor's Wife"*—By Tressa M. Scott—
Mrs. T. D. Roland, Shawnee.
4. Address—Mrs. J. O. McReynolds, Dallas, Texas, President American Medical Association Auxiliary.

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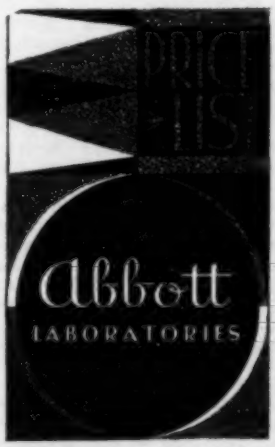
NEW ABBOTT—D.R.L.—MILLIKEN PRICE LIST



One of the most handsome and modern price lists ever published by a pharmaceutical house is now being distributed by the Abbott Laboratories.

This list, beautifully designed and printed in attractive colors, contains 176 pages. Included in this price list, will be found only the principal products of the Abbott Laboratories and the Dermatological Research Laboratories, but also a list of the most important prepartions of the house of John T. Milliken & Co. of St. Louis, which was acquired by The Abbott Laboratories on January 3, 1928. With the addition of this line The Abbott Laboratories is now prepared to supply standard pharmaceuticals of the finest quality, as well as the fine chemical and other specialties which has been the distinguishing feature of this house.

The great war led to a radical change in The Abbott Laboratories. For some years prior to 1916, a limited amount of research had been conducted, and a few chemical products were manufactured in its Ravenswood plant. The nucleus of a real chemical staff had been assembled. In 1916, Dr. H. D. Dakin, an English chemist, cooperating with Dr. Alexis Carrel, in France, in the study of septic wounds, discovered the remarkable germicidal power of chloramines. His paper was published in the British Medical Journal. This led to the manufacture of Chlorazene by the Abbott Laboratories—the first firm to produce and introduce this substance in America. Soon after followed Dichloramine—T and Chlorcosane, also developed by Doctor Dakin. These three substances are now official.

Since then The Abbott Laboratories has taken front rank in research in synthetic medicinals. When we entered the war, it was assigned the task of producing some of the more important medicinals heretofore made only in Germany, such as Barbital, Procaine and Cinchophen. Soon it added Anesthesin, Acriflavine, Neutral Acriflavine and Neocinchophen. From the very beginning of its venture into the chemical field, original research, looking to the discovery of new and valuable products, has been part of the program of the house, and the result is the introduction of a number of valuable new synthetic drugs, among them Butyn, Butesin and Butesin Picrate, Neonal and Metaphen.

In the hands of The Abbott Laboratories and under the direction of Dr. George W. Raiziss, the "D.R.L." has made steady progress, not only in the production of large quantities of the arsphenamines of constantly improving quality; but also in fine research leading to the creation of valuable new synthetics, such as Metaphen, Bismarsen and Salihexin.

Still another forward step was the moving of The Abbott Laboratories from Ravenswood, in Chicago, to the splendid new plant, consisting of a group of fourteen buildings on a tract of twenty-five acres, located at North Chicago, Illinois.

The latest step forward is the acquisition of Milliken, already referred to. Milliken products have an excellent reputation, which will be enhanced by the Abbott policy of backing its preparations by constructive research, looking toward constant improvement — the abandonment of things that are weak or useless, and insistence upon bringing the line into accord with the changing spirit of the times. Abbott gives this assurance to its friends—that in broadening the base upon which its business structure rests, by the addition of a general line, it is going forward, not backward. The fundamental policies of the house will be adhered to for the evolution of better as well as bigger things.

The Abbott Laboratories is built upon research, and greater pride is taken in the scientific achievements of the house than in its financial success. As stated by the President of the firm, Alfred S. Burdick, M.D., "We believe that the future of this institution must rest upon sound scientific work. Our policy, therefore, may be epitomized as follows:

1. Research is fundamental and vital. Without it real progress is impossible — in spite of occasional evanescent success.

2. Research in a business organization should be co-ordinated with research in our universities, hospitals and other institutions.

3. Specialize. This means the direction of intense effort into certain important channels. The result should be the evolution of real specialties of outstanding merit, which will achieve and deserve success.

(Continued on page 136)

UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D.
1010 Medical Arts Building, Oklahoma City.

CLIPPINGS FROM THE UROLOGIC AND CUTANEOUS REVIEW

A rusty office is a pretty sure sign of rusty professional methods.

A pain at first suggestive of an upper urinary tract involvement may be due to basal pleurisy.

A urological examination can not be considered complete without a catheterization of the ejaculatory ducts.

Perforation of the nasal septum is commonly syphilitic in origin, but it can also be caused by tuberculosis.

Atrophy of the matrix of one or more nails in childhood is a very, very suggestive sign of late congenital syphilis.

Renal function tests are not in themselves infallible yardsticks, but must be correlated with other clinical data.

No kidney is safe so long as there is a stone in the ureter even if the stone seems to be giving rise to no immediate symptoms.

It is an excellent habit for a surgeon to inspect his hands the first thing every morning for the presence of minute fissures and follicular infections.

A psoriasiform lesion in the palm of one hand may be syphilitic in origin, but if on the palms of both hands, a syphilitic origin is very improbable.

In all untreated, or imperfectly treated cases of syphilis in the early late stage it should be part of the routine examination to make a fluoroscopic examination of the aorta for beginning aneurysm.

If you have to get sexual history do not continue to beat around the bush, but after a decent introduction of the subject be direct, dignified and considerate of the patient's feelings, but nevertheless pointed and insistent in your necessary inquiries.

The following is a Senior Medical Student, B. H. Britton's answer to the final examination question "What is the standard treatment for syphilis?" I am quoting it verbatim because it is such a comprehensive answer on the subject and written in the words of the medical student who will soon take his place in the ranks of M.D's that I believe it worth while to re-print in this column:

"It is upon this question that I particularly wish to lay stress. There is NO STANDARD treatment for syphilis. It is treated in cycles to the point of saturation, and each case is treated individually. It is upon the so-called standard treatment that the majority of our cases of general Paresis develop. It is therefore obvious that we cannot have a standard treatment for syphilis. It must be varied according to the individual. Some will stand more intensive treatment while others cannot tolerate it. Some will respond very fast to a mild treatment while others will respond very slowly to a very intensive treatment. We must therefore govern our treatment by the manifestations of the progress of the disease and the effect of the treatment upon the clinical actions of the disease. The drugs accordingly must be varied. Some respond to one of the arsenicals while others will not. Some respond beautifully to Mercury while others to Bismuth. Some will tolerate more of the one than of the other. The KI which is given in large doses will be tolerated in large quantities by some while in others it will be tolerated only in minimul quanities. Therefore we cannot lay too much stress on treating the individual rather than saying we have a certain routine which we must follow in all cases. **What then is the treatment for syphilis? And what are the merits of the individual drugs used?** The treatment for syphilis may be divided into three classes, i.e. broadly speaking: 1, Intensive; 2, Mildly intensive; 3, Slow."

"First we shall discuss the intensive treatment. It should be used in cases of early appearance of Chancre, in early recognition, in secondary stages, and in cases where for instance a surgeon cuts his finger with a knife which has been used on a syphilitic. In all cases however, whether it be mild, intensive, or mildly intensive, we must remember to treat in cycles to the point of saturation. Whether it takes 5-7-9 or 30 doses we must reach the saturation point. Given a case in a healthy individual. Give him .45 Monday, .6 Wednesday, .9 Saturday, .9 Tuesday, .9 Saturday, then go ahead at from five to seven day intervals until you have him saturated which is evidenced by the patient feeling tired, catching cold easily, general malaise and emotional instability. Therefore the first cycle in the treatment is to the saturation point. The above figures are using Neo-salvarsan. Mercury in increasing doses from 1-8 to 1-4 should be crowded during this time."

"After this saturation point is reached, as said before whether it be after the administration of five or twenty doses a rest of thirty days is given. Ten days before the rest period is over the KI is started. It is usually satisfactory to begin with 15 Gtts T.I.D. in one glass of water before meals. In this way it will generally always be retained. Increase this one drop for each dose daily until the patient's tolerance is reached. At the end of this thirty day rest period another cycle is started The Neo may have to be decreased somewhat as the patient may not be able to tolerate as large doses as in the previous cycle. After the saturation point is reached the third cycle is started. During this period Bismuth is used instead of Mercury, great care being taken to watch for saturation signs regarding the Bismuth which is evidenced by blue line on the gums, salivation and kidney disturbances. After the third course it is a case of watchful waiting and keeping in touch with the patient. After sixty to one hundred twenty days a Wassermann should be run and should be checked every six months thereafter."

"Now if we have an emaciated patient, poorly nourished, with perhaps some constitutional disease, or an old patient, we should use a mildly intensive treatment. We must approach him cautiously. We here as before treat in cycles to point of saturation but watch heart and kidneys very closely. We may not be able to cure him, but only prolong his life by keeping a few jumps ahead of the Spirochoete. In connection with children it is better to give more arsenic and less mercury. If we pick up the case in a routine examination we

should start the Iodides with the first course. If Iritis is present we should use Bismuth and Iodides until the acute symptoms subside.

"If we have an old "Shot" individual, we should start the KI and Bismuth first and after this has been going for some time we can start minute doses of Arsenic, but we must be very acute in the watching of the patients as they are easily put out of their misery."

"Lastly in the case of Tabes, the modified Swift Ellis method is mostly used but some workers claim that mercuricalized serum is more satisfactory than Swift Ellis, it being ready prepared media containing a definite amount of Mercury and injected into the spinal canal with ordinary lumbar technique. This method combined with the vigorous general treatment promises the best known results for tabes."

EYE, EAR, NOSE and THROAT

Edited by Jas. C. Braswell, M. D.
726 Mayo Bldg., Tulsa

The Treatment of the Commoner Syphilitic Lesions of the Eye., Hopkins, J. G. Arch. Ophth., 1927, LVI, 543.

The arsphenamines are the most active spirochaeticides and clinically the most effective. Bismuth and mercury are also of undoubted value and should be used in conjunction with the arsphenamines. In early cases, the treatment should be intensive; the administration of drugs should be continuous and the treatment prolonged. In late cases, the treatment should be begun with small doses but ultimately should follow the plan for the early cases. If a serological cure becomes impossible, the treatment must be planned to prevent relapse, one course a year being given for an indefinite period. Intraspinal treatment should be reserved for cases which do not respond satisfactorily to the intravenous method. Except in paresis, the malaria treatment must be regarded as experimental.

In secondary syphilis, iritis is the most common eye lesion. It indicates a systemic infection at a stage in which it may be completely eliminated by proper therapy. In interstitial keratitis, pessimism need not prevail if the arsphenamines, mercury, bismuth, and the iodides are pushed to the limit. Arsphenamine can have no effect on the repair of the cornea, but in most cases will arrest the progress of the inflammatory process. In the optic atrophy due to basilar meningitis the results are good, but in that associated with tabes they are very poor. One or two injections of mercury or bismuth should be given first and arsphenamine begun with small doses by the Swift-Ellis procedure. It is fairly well established that in the majority of cases receiving intensive treatment early in the disease, the symptoms disappear, the serum reactions become and remain negative, and no further ocular symptoms develop.

The Relation of Cupping of the Optic Disk to the Visual Fields in Glaucoma, Wuerdemann, H. V.: Am. J. Ophth., 1927, 3 s. x., 831.

The author states that he now sees a greater number of cases of glaucoma than formerly and is especially interested in the relation of the changes in the optic disk to those of the visual field and the relation of the degree and character of cupping of the disk to the sectoral changes in central and peripheral vision.

The weak spots of the globe is the foramen in the sclera and choroid, and it is here in the nerve where signs of increased pressure appear. These signs vary according to the suddenness, severity, and periodicity or permanency of the pressure. Cupping of the disk is due to stretching of the lamina and atrophy of the nerve bundles in the distal end of the optic nerve. The temporal retina suffers first and most, the temporal capillary branches being more affected because of their length, but the main defects in the visual field are the results of atrophy of the nerve fibers going to that particular field. However, the field defects vary in each case according to which fibers are most involved, as is evident from the Ronne, Seidel, Bjerrum, and Elliott signs. The order of development of field defects is: (1) concentric contraction, (2) nasal sectoral deficiency, (3) enlargement of the blind spot and isolated pericentral scotomata, and (4) involvement of the papillomacular fibers with loss of central vision and blindness.

The color fields in glaucoma are relatively as large as those for white and form a diagnostic point of some importance since in other atrophic types the color fields are generally more affected than those for form.

Herpes Zoster Oticus., Stewart, J. P.: J. Laryngol. & Otol., 1927, XLII, 665.

The author reports a case of zona with a multiplicity of lesions involving primarily the vestibular ganglion on either side. It was assumed that, on the left side, the infection travelled up the large lymph spaces in the substance of the cochlear filament connecting the vestibular ganglion with the geniculate ganglion and probably extended downward along the chorda tympani, involving the lingual nerve. It is possible also that there was a primary infection of the gasserian ganglion.

The symptoms were blisters on the left border of the tongue, a slight loss of taste, fever, left-sided deafness, left-sided facial paralysis, and bilateral vestibular paralysis. All except the left-sided deafness cleared up.

Tissue Changes in the Nasal Mucosa; Preliminary Report., Finck, H. P.; Laryngoscope, 1927, xxxvii, 783.

In acute nasal congestion, microscopic examination of the nasal mucosa reveals oedema, an increase in the mononuclear cells, and a definite increase in the eosinophiles, but none of the classical signs of bacterial infection. In acute purulent rhinitis, the lymphocytes are markedly increased, but the eosinophiles and oedema are decreased. Chronic purulent rhinitis shows tissue hypertrophy and an increase of lymphoid elements and plasma cells. In these purulent conditions it is usually difficult to demonstrate bacteria in the tissues.

Vasomotor rhinitis is characterized by oedema and a marked increase in the eosinophiles. In nasal polyps, various cellular types are found, depending upon the character of a concomitant nasal infection. Cystic polypoid formations include mucoceles, mesothelial cysts, and cystic degeneration of polyps. The tissues adjacent to such formations show lymphocytes, plasma cells, and connective tissue changes. In atrophic conditions

of the nasal mucosa there is a definite reduction or disappearance of lymphoid elements, eosinophiles, and other infiltrating cells.

In the majority of tissue changes the significant cells are the lymphocytes, plasma cells, and eosinophiles. Lymphocytes and plasma cells prevail in purulent rhinitis, and eosinophiles in vasomotor and anaphylactic conditions.

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BACTERIOLOGY, PATHOLOGY and PUBLIC HEALTH

Edited by Drs. L. A. Turley and Gayfree Ellison, Norman, Oklahoma

Results of Removal of Dental Focal Infections. R. J. DeMotte, M.D. and Ernest Goldhorn, D. D. S. Journal of Industrial Hygiene., Jan., 1925, Vol. IX, No. 1.

There is scarcely a tissue or part of the body which has not been found diseased or damaged through dental focal infections. These infections have been the cause of untold sufferings and disability.

It is difficult to convince the average patient that removal of infected teeth which are giving no pain will stop the pains of neuritis or arthritis in remote parts of the body. In spite of vigorous efforts to convince them, a large majority do not follow the advice given.

In reply to letters sent to patients, the following results were gathered. Of 185 patients, of which 78.1 per cent replied, 57.3 per cent were cured, 24.9 per cent relieved, 82.2 per cent cured and relieved, 17 per cent unrelieved. Among these 185 patients there were 36 who were suffering from Myositis, 50 from chronic arthritis, 43 from neuritis, 19 from chronic stomach trouble and 37 from various other chronic ailments for which no adequate cause other than infected teeth could be found.

Of the 17 percent which were unrelieved, 23 cases in which favorable results could not be expected due to obvious reasons. Thus 93.8 per cent were either cured or relieved, if these 23 cases dropped.

With this taken into consideration, a careful examination of patients should be made as to the teeth. Teeth that are infected should not be filled, but removed. And education of the profession and the laity is needed.

Bacterium Melaninogenicum From Normal and Pathologic Tissues. Kenneth L. Burdon, Journal of Infectious Diseases. Feb. 1928, Vol. 42. No. 2.

Oliver and Eherry, in a brief note, originally described and named the nonspore-bearing, black pigment producing anaerobic microorganisms, Bacterium melaninogenicum. They cultured it from the throat and elsewhere on human blood agar slants made anaerobic by the pyrogallic method, on which characteristic dark brown or black colonies became visible within one to two weeks. As the growth increases the hemoglobin throughout the agar slant disappears until finally the medium appears like a slant of plain agar.

These authors did not use plating methods for isolation and purification of their cultures and it seems probable from their description that they did not obtain strictly pure cultures, according to the author, who states that growth of pure cultures is uncertain, slow, and usually meager. Hemolysis is slight, and the complete destruction of the hemoglobin throughout a slant or plate does not occur. In mixed cultures under anaerobic conditions growth on blood agar is rapid and luxuriant.

Cultures were made from the dental-gingival margin, and also from exposed surfaces of the gums, cheeks. and throat of 200 individuals. Many were cultured several times. Groups of 30 to 75 students and clinic patients were cultured at one time. Material from the gum margin was obtained by the use of a blunt needle with end bent at right angles, rather than a swab.

The bacterium was found in the mouths of all persons examined, localized chiefly in the dental-gingival margin. It was absent, or present in small numbers only, on exposed surfaces of the mouth or throat. It was found in considerable numbers in cultures from the fold between upper gum and roof of mouth posteriorly. Cultures from persons with gums and teeth in excellent condition, showed consistently very few of the pigmented bacteria, whereas cultures from individuals with comparatively poor dental conditions whose gum margins were dirty, blunted or loosened from the teeth, always revealed a large number.

Cultures from the pus expressed from gum pockets, or made by passing needles directly into inflamed tissues about the infected teeth, in pyorrhea cases, revealed the presence of the bacterium melaninogenicum in very great numbers. In all cases studied, the number of the organisms present was proportional to the stage of the disease, the advanced stages showing the bacterium in great numbers, the beginning stages in less numbers. In two cases which were treated and cured, the bacterium appeared only in normal amounts after the cure.

In four cases of acute Vincent's infection and 3 abscesses of teeth, the black growth was meager. In cultures from crypts of 16 pairs of excised tonsils an abundant black growth developed in each case. Cultures from sputum of 9 lung abscesses, 2 were negative and 7 were positive. From the male genitalia, 10 negative and 25 positive from 35 cultures. From the female genitalia, 32 negative and 105 positive.

The factor which appeared to affect directly and definitely the numbers of the organisms present was the degree of personal cleanliness of the patient.

Summary and Discussion: Bacterium melaninogenicum is a very small, nonspore bearing, gram-negative anaerobic diplococcobacillus. Its growth in pure culture is feeble, but it grows readily in very intimate mixture with other bacteria. They are found present on healthy mucous membranes. They probably have no primary etiological significance, acting as secondary invaders, but in many cases they constitute an important bacterial factor in diseases.

Schwarz and Dieckmann, found that puerperal fever of the type originating in all prob . autoinfection, and frequently involving the pigment producing organism, is extremely rare in the more cleanly patients and occurs most commonly in colored ward patients of the less clean type.

In conclusion, Bacterium melaninogenicum constantly inhabits healthy mucous membranes but

takes a prominent part in various pathologic processes.

Moisture as an Etiologic Factor in Industrial Infections. C. W. Goff, M.D. Journal of Industrial Hygiene, Jan. 1925, Vol. IX, No. 1.

This report demonstrates the increased incidence of infections of the hands and forearms of a group of textile operatives with relation to the presence of moisture as an important etiologic factor.

It is taken from the mills in which raw silk is handled. The groups studied, are ones whose hands are continually damp and often wet, and the ones that handle the silk in the first stages in which it is only slightly damp. The latter, group 1, suffered infections of the hands and forearms. These infections followed lacerations sustained during work. In the group, whose hands were continually wet, of forty-one operatives, there was a total of 151 injuries to the hands or forearms with 117 infections resulting, ranging in severity from simple infections or lacerations of the fingers to cellulitis of the hand, acute paronychia, and tenosynovitis of the forearm. Only five operatives had not sustained some form of infection. In a group between the first two, in which the hands and forearms were only slightly moist, of forty-four operatives, there was a total of sixty injuries with thirty-one infections of the hands and forearms.

Kenshaw, of the National Safety Council, from his experience believes that skin infection is similar departmental processes in woolen mill workers, "is due to a weakness on the part of the individual". He do doubt wishes to convey the thought that the "weakness" lies essentially in the skin exposed to the added moisture.

After eliminating the individual job hazard, the figures for the three groups studied show, that in the group where the hands were continually wet, 78 per cent of injuries infected, has by far the greatest proportion of infections of injuries to hands and forearms. The group in which the hands were only moist, 50 per cent, and the group where only moist a little of the time, 33 per cent.

The only variable factor of importance is the degree of moisture, of the material and the hands of the workers.

In conclusion, this study indicates that moisture must play a greater part than is generally realized in the production of infections. Its significance can readily be drawn from the severity of the infections found in the groups of operatives shown.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M. D.
717 North Robinson St., Oklahoma City

Conditions of the Bones, Joints, Muscles, Tendons, Etc. Krasnobajev, T. P: The Treatment of Acute Haematogenous Infectious Osteomyelitis (Ueber Behandlung der akuten haematogen infektiocsen Osteomyelitis). Novyj chirurgiesceskij archiv, 1925, VIII, 354.

At the seventeenth Russian Surgical Congress held in Leningrad in 1925, the author discussed the principles of the treatment of acute osteomyelitis, and reviewed the results he had obtained in cases of this condition in the last twenty years.

The treatment should be as conservative and as simple as possible. In the acute initial stage, radical operative measures and general narcosis are contra-indicated. Operation must be limited to incision of the soft tissues to the periosteum under local anaesthesia. In severe septic cases this incision must be made before fluctuation is demonstrable. In mild cases, simple aspiration by puncture may be sufficient. Tamponade is contra-indicated, but occasionally drainage with counter-openings may be established for a short time. Following such treatment more extensive operative measures may be not only unnecessary but actually harmful.

Care must be taken to improve the general condition and to spare the tissues in the operative field. In epiphyseal osteomyelitis complicated by suppurative inflammation of the joints, more extensive operative measures are indicated. However, in the cases of small children, it may be necessary to restrict the treatment at first to simple aspirations. In cases in which the pus has broken through the capsule wall and has led to the formation of a phlegmon, arthrotomy should be done. Tamponade is contra-indicated. Resection is indicated in epiphyseal osteomyelitis only in cases of hip disease with gangrene and complete separation of the head of the femur. After the sepsis has subsided, early necrotomy with removal of all visible dead bone must be performed without waiting for the formation of an involucrum. The operative wound must then be sutured. If the proper post-operative care is given, amputation and exarticulation are rarely necessary.

The author reports his experience in 428 cases of acute osteomyelitis in children under 13 years of age. There were ninety-six deaths, a mortality of 22.4 per cent. The highest mortality, 22 per cent, was that of the group of 127 children under 2 years of age.

The oesteomyelitis involved the thigh and leg in 148 cases (forty-eight deaths), the head of the femur in ten cases (one death), the ilium in twenty cases (eight deaths), the scapula in seventeen cases (recovery in all), and the epiphyses in 127 cases. Epiphyseal osteomyelitis involved the hip joint in sixty nine cases (sixteen deaths), the knee joint in thirty-five cases (two deaths), the shoulder in ten cases (two deaths), the ankle in nine cases (no deaths), the elbow in two cases (one death), and the hand in one case (recovery). In the one case of involvement of the tibial epiphysis without involvement of the knee, recovery resulted.

Aspiration of pus by puncture was done in nineteen cases (chiefly cases of hip and knee involvement) with one death. Incision or arthrotomy were done in ninety-one cases, with fifteen deaths. Resection of the hip joint was done in eleven cases, with five deaths.

Of sixty-four cases of epiphyseal osteomyelitis in which bacteriological examinations were made cocci in chains were found in thirty-six (streptococci in sixteen cases and diplococci in twenty). In this group the mortality was 16 per cent, whereas in twenty-seven cases of spathylococcal infection, the mortality was only 10.7 per cent.

Fractures and Dislocations. Henderson, M. S.: The Cause and Treatment of Ununited Fractures. South. M. J., 1926, XIX, 746.

It is difficult to assign a definite cause for delayed union or non-union in any given case of un-

united fracture. One or more factors may be responsible, such as devitilizing trauma, the interposition of muscle or fascia with extensive overriding, inadequate reduction, improper apposition of fragments, interference with the blood supply, and too early weight bearing or resumption of function.

The work of Robinson and his coworkers appears to have sufficient basis on which to build a reasonable hypothesis to explain the apparent interference with the normal processes of ossification. This theory is based on the presence in the osteoblasts and hypertrophic cartilage cells of an enzyme (phosphoric esterase) which acts on the phosphoric esters of the blood. It has been shown that amino acids such as would be formed by autolysis of dead tissue or haematomata decalcify the bone appreciably and thus tend to reduce the amount of the enzyme present. The enzyme is inhibited in its action by an acid medium. The fact that this unfavorable influence on ossification does not occur in all cases of fracture is not proof that it cannot happen in some.

If this careful experimental work can be accepted, fractures produced by severe injuries with consequent serious trauma to the soft parts should be regarded with suspicion. It is reasonable to argue that such fractures should be opened and cleaned of the damaged tissue and haematomata, accurate reduction should be obtained, and a dry field secured.

The massive bone graft is the method of choice in case of nonunion and leads to a higher percentage of cures than any other method. In delayed union, good results are obtained in a large percentage of cases by any method which exposes the fragments, realigns them, and maintains good apposition.

IS MEDICAL EDUCATION OVER-STANDARDIZED?

Among numerous criticisms of medical education in recent years is the claim that it is overstandardized. Twenty-five years ago less than 30 of the 162 medical schools then existing required even a high school education for admission, and only two had any requirement of college work. At that time also less than a third of the institutions had a course of instruction worthy of being called a curriculum. The present situation, in brief, represents a change from a complete absence of entrance requirements in the majority of medical schools to a minimum of two years of college work, and from no curriculum to what, under the circumstances, must be, to say the least, an improvement. The greatest difficulty in this rapid development arose through the inadequate supply of properly qualified teachers to meet the greatly increased demand, particularly for the laboratory sciences. Through the scarcity of physicians who were also qualified teachers, the schools were forced to accept doctors of philosophy, or even masters or bachelors of arts or science with qualifications as nearly approaching the requirements as possible. Under such a handicap, the present high stage of development of instruction in our medical schools is remarkable. But the faults in medical instructions were not restricted to the laboratory departments: many deficiencies have existed in the teaching of the clinical subjects. Not until after the advances in entrance requirements and in instructions in the laboratory sciences did the quality of instructions in the clinical departments undergo an increasingly rapid development. Only during the last decade in many of the medical schools were patients in dispensaries and hospitals more generally and spstematically of aid for teaching purposes, and only recently have students been given the opportunity in small sections and as clinical clerks to write histories, make physical examinations, suggest treatment and note the clinical progress of diseases. A minority of our medical schools, it is true, have always been fairly well organized and equipped and have rapidly advanced. In the majority, however, the change of instruction has been from an inferior type to what now is at least a logical sequence of subjects and a fairly well arranged routine of instruction. Perhaps it is complimentary to state that the course of instruction has reached a stage at which a criticism of "overstandardization" can be made. The requirement of only two years of college work for admission, the present four-year medical curriculum and a year of intern training cannot be termed extravagant, as they represent the minimum standard of a physician's education in all the leading countries of the world. The faults of underdevelopment will probably be corrected in time.—Jour. A. M. A., April 30, 1927.

DRESSINGS FOR BURNS

Harry S. Fist, Los Angeles (Journal A. M. A., May 7, 1927), says that a dressing that presents several advantages may be prepared by dipping gauze into a hot, dilute, aqueous solution of pure gelatin, drying it, and then trating with solution of formaldehyde U. S. P. of half strength, and finally washing and drying. The result is a gauze that is unaffected by moisture; it will not stick to a granulating surface, and may be kept in a warm climate or sterilized in an autoclave. When this prepared gauze has been used as a dressing, granulation has proceeded with great rapidity. The gauze, when dry, is slightly stiffer than paraffined gauze but softens somewhat when moistened. If well diluted gelatin solution is used, the dressing is not too stiff for application to raw surfaces. Before the gauze is applied the surface should be well cleansed and then dried, preferably by means of hot air. The dressing should be removed daily, the wound cleansed and dried, and a new dressing applied. Pure gelatin is easily obtainable and should always be used.

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(Continued from page 131)

4. Anticipate the currents of thought by watching the trends. Never in the history of medicine has there been such a ferment of intellectual activity. Look ahead. Encourage those about you to do this.

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